DELTA-MENDOTA CANAL UNIT

ENVIRONMENTAL ASSESSMENT
LONG-TERM CONTRACT RENEWAL

October 2000

DELTA-MENDOTA CANAL UNIT

ENVIRONMENTAL ASSESSMENT

Table of Contents

October 2000

TABLE OF CONTENTS

Appendices

Tables

Figures

ABBREVIATIONS AND ACRONYMS

CEQA	California Environmental Policy Act
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
CO	Carbon Monoxide
COA	Coordinated Operating Agreement
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVPM	Central Valley Production Model
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FMMP	Farmland Mapping and Monitoring Program
GAP	Geographic Assistance to Planning
M&I	Municipal and industrial
mg/L	Milligrams per liter
NEPA	National Environmental Policy Act
NOx	Nitrogen oxides
NRHP	National Register of Historic Places
O_3	Ozone
OCAP	Operations Criteria and Plan
PEIS	Programmatic Environmental Impact Statement
PL	Public Law
PM	Particulate matter
Reclamation	U.S. Bureau of Reclamation

RRA	Reclamation Reform Act
Secretary	Secretary of the Interior
Service	U.S. Fish and Wildlife Service
SJVAB	San Joaquin Valley Air Board
SJVUAPCD	San Joaquin Valley Unified Air Pollution Control District
SHPO	State Historical Preservation Office
State Board	State Water Resources Control Board
SWP	State Water Project
VAMP	Vernalis Adaptive Management Plan
Water Forum	Sacramento Area Water Forum

DELTA-MENDOTA CANAL UNIT

ENVIRONMENTAL ASSESSMENT
LONG-TERM CONTRACT RENEWAL

Executive Summary

October 2000

EXECUTIVE SUMMARY

This Environmental Assessment evaluates the consequences of implementing provisions associated with the renewal of long-term water service contracts to contractors in the Delta-Mendota Canal Unit of the Delta Division of the Central Valley Project. These provisions are embodied in three alternatives, including the No-Action Alternative, Alternative 1, and Alternative 2. The No-Action Alternative is the same as the Preferred Alternative identified in the Central Valley Project Improvement Act Programmatic Environmental Impact Statement. Alternative 1 is based upon, but differs slightly from the counterproposal prepared by the contractors in April of 2000. Alternative 2 is based upon, but differs slightly from the proposal initially submitted by the government in November 1999, to which the contractors responded with their counterproposal.

This Environmental Assessment includes six chapters. Chapter 1 discusses the Purpose and Need for the action of renewing long-term water service contracts. It discusses the basis for such renewals across the entire Central Valley Project and within the Delta-Mendota Canal Unit. It also discusses the relationship between contract renewals and the Central Valley Project Improvement Act Programmatic Environmental Impact Statement and reviews several related actions and programs that affect water supply reliability south of the Delta.

Chapter 2 describes the three alternatives, and includes reviews of the long-term contract renewal process and relevant issues, including water needs analyses, water transfers, tiered water pricing, the definition of municipal and industrial users, and water measurement within the context of each alternative. The table at the end of Chapter 2 compares the provisions of the three alternatives.

Chapter 3 summarizes the Central Valley Project Improvement Act Programmatic Environmental Impact Statement and emphasizes impacts already identified in that document.

Chapter 4 reviews the affected environment and environmental consequences that could result from implementation of either Alternative 1 or Alternative 2 when compared to the No-Action Alternative.

The No-Action Alternative is the Preferred Alternative identified in the Central Valley Project Improvement Act Programmatic Environmental Impact Statement. Chapter 4 begins with descriptions of the 20 contractors in the Delta-Mendota Canal Unit. The affected environment and environmental consequences of Alternatives 1 and 2 are then

evaluated for agriculture, socioeconomics and power resources, land use, air quality, soils and geology, groundwater, surface water resources, surface water quality, biological, cultural, recreational, and visual resources, and public health/mosquitoes. Table ES-1 summarizes the environmental consequences that could result from implementation of either Alternative 1 or Alternative 2 when compared to the No-Action Alternative. Cumulative impacts on a Central Valley Project-wide basis are addressed in the Central Valley Project Improvement Act Programmatic Environmental Impact Statement. Beyond those cumulative impacts, there are no additional cumulative impacts attributable from Alternative 1 or 2 that would contribute to cumulative impacts.

Chapter 5 reviews other considerations, including environmental justice and Indian trust assets.

Chapter 6 reviews Consultation and Coordination activities conducted as part of the long-term contract renewal process.

Table ES-1
Environmental Consequences of Long-Term Contract Renewal Alternatives 1 and 2 as Compared to the No-Action Alternative

Affected Resource/Concern	Environmental Consequences of Alternative 1	Environmental Consequences of Alternative 2
Agriculture	Agricultural resource use assumed to be similar to the No-Action Alternative because the amount of water delivered, the timing of those deliveries, and the rates and methods of payment for deliveries do not substantially differ from the No-Action Alternative.	Impacts to Delta-Mendota Canal Unit total irrigated acreage range from 1,600 acres during a wet year to a 3,000-acre increase during a dry year. Impacts to Delta-Mendota Canal Unit value of production range from $1.0 million decrease during an average year following a dry, five-year period to a $1.2 million increase during a dry year. Impacts to Delta-Mendota Canal Unit net farm revenues range from $700,000 decrease during a wet year following a wet five-year period to a $2.2 million increase during a dry year following a dry five-year period.
Socioeconomics/ Power Resources	Socioeconomic and power resources impacts are expected to be similar to the No-Action Alternative because the amount of water delivered, the timing of those deliveries, and the rates and methods of payment for deliveries do not substantially differ from the No-Action Alternative.	No impacts to power resources because CVP hydroelectric facilities would continue to be operated as under No-Action Alternative conditions. San Joaquin River region total employment would decrease by 120 jobs and income from profits and wages would decrease by $4.2 million under the Average-Average hydrologic sequence. Region would lose an estimated 250 persons. San Joaquin River region total employment would decrease by 420 jobs and income from profits and wages would decrease by $12.4 million under the Dry-Average hydrologic sequence. Region would lose an estimated 873 persons.
Land Use	No direct adverse impacts to land use. Renewed contract water deliveries continue to accommodate a portion of planned growth and support agricultural land uses as under No-Action Alternative conditions.	No direct adverse impacts to land use. Renewed contract water deliveries would continue to accommodate a portion of planned growth and support agricultural land uses as under No-Action Alternative conditions.

Table ES-1
Environmental Consequences of Long-Term Contract Renewal Alternatives 1 and 2 as Compared to the No-Action Alternative

Affected Resource/Concern	Environmental Consequences of Alternative 1	Environmental Consequences of Alternative 2
Air Quality	Similar crops, cropping patterns, and total irrigated acreage would not result in substantial fallowed acreage capable of adverse fugitive dust or related air quality impacts when compared to the No-Action Alternative.	Similar crops, cropping patterns, and total irrigated acreage would not result in substantial fallowed acreage capable of adverse fugitive dust or related air quality impacts when compared to the No-Action Alternative.
Soils and Geology	Increased groundwater pumping could increase land subsidence. Increased soil salinity could result from reductions in surface water available for leaching salts through crop root zones or from poor quality groundwater pumped in response to reduced deliveries.	Increased groundwater pumping could increase land subsidence. Increased soil salinity could result from reductions in surface water available for leaching salts through crop root zones or from poor quality groundwater pumped in response to reduced deliveries.
Groundwater	Increased pumping in response to reduced surface water deliveries could reduce groundwater levels and salinity.	Increased pumping in response to reduced surface water deliveries could reduce groundwater levels and salinity.
Surface Water Resources	No impacts to surface water resources. Contract total, water to be made available, time for delivery, point of diversion, responsibility for water diversion, water measurement, and rates and methods of payment do not differ substantially from No-Action Alternative.	No impacts to surface water resources. Contract total, water to be made available, time for delivery, point of diversion, responsibility for water diversion, water measurement, and rates and methods of payment would not differ substantially from No-Action Alternative.
Surface Water Quality	No impacts to surface water quality. Continued operation of conveyance and distribution facilities would not degrade water quality when compared to the No-Action Alternative.	No impacts to surface water quality. Continued operation of conveyance and distribution facilities would not degrade water quality when compared to the No-Action Alternative.
Biological Resources	No adverse impacts to fish, vegetation and wildlife. Contract renewal would continue water deliveries accommodating land uses existing under the No-Action Alternative. No habitat supporting special-status species would be converted to agricultural, municipal, or industrial use when compared to the No-Action Alternative.	No adverse impacts to fish, vegetation, and wildlife. Contract renewal would continue water deliveries accommodating land uses existing under the No-Action Alternative. No habitat supporting special-status species would be converted to agricultural, municipal, or industrial use when compared to the No-Action Alternative.
Cultural Resources	No impacts to cultural resources. Virtually all of the actions associated with long-term contract renewals are within the range of land uses expected under the No-	No impacts to cultural resources. Virtually all of the actions associated with long-term contract renewals are within the range of land uses expected under the No-

Table ES-1
Environmental Consequences of Long-Term Contract Renewal Alternatives 1 and 2 as Compared to the No-Action Alternative

Affected Resource/Concern	Environmental Consequences of Alternative 1	Environmental Consequences of Alternative 2
	Action Alternative. The area of use, types of use, range of river flows, and range of reservoir fluctuations fall within this range when compared to the No-Action Alternative. No changes in land use or additions to contractor service areas would affect cultural resources when compared to the No-Action Alternative.	Action Alternative. The area of use, types of use, range of river flows, and range of reservoir fluctuations fall within this range when compared to the No-Action Alternative. No changes in land use or additions to contractor service areas would affect cultural resources when compared to the No-Action Alternative.
Recreational Resources	No adverse impacts to recreational resources. Facility operations, recreational opportunities, annual use levels, and reservoir water surface elevations would not differ substantially when compared to the No-Action Alternative.	No adverse impacts to recreational resources. Facility operations, recreational opportunities, annual use levels, and reservoir water surface elevations would not differ substantially when compared to the No-Action Alternative.
Visual Resources	No adverse impacts to visual resources. Patterns of cultivated and fallowed acreages would remain substantially the same as under No-Action Alternative conditions. Agricultural viewsheds, scenic views, and visibility would not be substantially affected when compared to the No-Action Alternative.	No adverse impacts to visual resources. Patterns of cultivated and fallowed acreages would remain substantially the same as under No-Action Alternative conditions. Agricultural viewsheds, scenic views, and visibility would not be substantially affected when compared to the No-Action Alternative.
Public Health/ Mosquitoes	No adverse impacts to public health or increases in mosquito breeding. No increase in flows or standing water would result when compared to the No-Action Alternative.	No adverse impacts to public health or increases in mosquito breeding. No increase in flows or standing water would result when compared to the No-Action Alternative.

DELTA-MENDOTA CANAL UNIT

ENVIRONMENTAL ASSESSMENT
LONG-TERM CONTRACT RENEWAL

Purpose and Need

October 2000

Chapter 1

PURPOSE AND NEED

INTRODUCTION

The Central Valley Project (CVP) is divided into nine separate divisions. This Environmental Assessment (EA) deals with the Delta-Mendota Canal Unit, one unit of the Delta Division. The U.S. Bureau of Reclamation (Reclamation) and the Delta-Mendota Canal Unit Contractors propose to renew the long-term water service and repayment contracts to deliver water from the CVP for agricultural and municipal and industrial (M&I) uses. The renewal of these contracts would allow continued CVP water delivery to the Delta-Mendota Canal Unit service area. This EA, which was prepared by Reclamation, evaluates the adverse impacts and benefits of long-term contract renewals.

PURPOSE AND NEED FOR THE ACTION

On October 30, 1992, the President signed into law the Reclamation Projects Authorization and Adjustment Act of 1992 (Public Law [PL] 102-575) that included Title XXXIV, the Central Valley Project Improvement Act (CVPIA). The CVPIA amended the previous authorizations of the CVP to give fish and wildlife protection, restoration, and mitigation equal priority with irrigation and domestic uses and to give fish and wildlife enhancement a project purpose equal to power generation. Section 3404(c) of the CVPIA directs the Secretary of the Interior (Secretary) to renew existing CVP water service and repayment contracts following completion of a Programmatic Environmental Impact Statement (PEIS) and other needed environmental documentation by stating that:

> *... the Secretary shall, upon request, renew any existing long-term repayment or water service contract for the delivery of water for a period of 25 years and may renew such contracts for successive periods of up to 25 years each ... (after) appropriate environmental review, including preparation of the environmental impact statement required in section 3409 (ie, the PEIS) ....*

Section 3409 of the CVPIA required the Secretary to prepare a PEIS to evaluate the direct and indirect adverse impacts and benefits of implementing the CVPIA. The PEIS was prepared under the National Environmental Policy Act (NEPA) by Reclamation and U.S.

Fish and Wildlife Service (Service). The Service became a co-lead agency in August 1999. Reclamation released a Draft PEIS on November 7, 1997. An extended comment period closed on April 17, 1998. Reclamation and the Service released the Final PEIS in October 1999.

The purpose of this action is to renew the Delta-Mendota Canal Unit long-term water service contracts, consistent with the provisions of the CVPIA. The project alternatives will include the terms and conditions of the contracts and tiered water pricing.

Long-term contract renewal is needed to:

- Continue beneficial use of water, developed and managed as part of the CVP, with a reasonable balance among competing demands, including the needs of irrigation and domestic uses; fish and wildlife protection, restoration, and mitigation; fish and wildlife enhancement; power generation; recreation; and other water uses consistent with requirements imposed by the State Water Resources Control Board (State Board) and the CVPIA.

- Incorporate certain administrative conditions into the renewed contract to ensure continued CVP compliance with current federal reclamation law and other applicable statutes.

- Allow the continued reimbursement to the federal government for costs related to CVP construction and operation.

BASIS OF CVP WATER SERVICE CONTRACT RENEWALS

Reclamation is responsible for operational control of the CVP including securing payment for the cost of water and for operation and maintenance established in the water service contract with the federal government. In addition, as a duly authorized representative, Reclamation administers all actions pertaining to the establishment of water service contracts on behalf of the Secretary.

PL 88-44, the Reclamation Project Act of 1939, provided for the repayment of construction charges and authorized the sale of CVP water to municipalities and other public corporations and agencies, plant investment, and certain irrigation water deliveries to leased lands. This act required the Secretary to comply with state laws relating to the control, appropriation, use, or distribution of water used in irrigation or vested rights acquired thereunder.

This act also provided that the Secretary include the provision for contract renewal, upon request of the other party to any long-term contract for municipal, domestic, or industrial water supply. The contract renewal would be subject to the renegotiation of (1) the charges set forth in the contract in the light of circumstances prevailing at the time of renewal and (2) any other matters with respect to which the right to renegotiate is reserved in the contract. This act also states that the Secretary shall, upon request, provide in any such long-term contract that the other party to the contract shall, during the term of the contract and of any renewal (subject to fulfillment of other obligations), have a first right to a stated share or quantity of the CVP water supply available for municipal, domestic, industrial, or irrigation use.

The Water Service Contracts Act of 1944 provided for the delivery of specific quantities of irrigation and M&I water to contractors.

The Reclamation Project Act of 1956 provided the right of renewal of long-term repayment or water service contracts for agricultural contractors for a term not to exceed 40 years. The Reclamation Project Act of 1963 provided the right of renewal of long-term repayment or water service contracts for M&I contractors.

The CVPIA included a right of renewal of long-term repayment or water service contracts for a term not to exceed 25 years, but the Secretary may or may not renew such contracts for successive periods for terms not to exceed 25 years.

BASIS OF DELTA-MENDOTA CANAL UNIT WATER SERVICE CONTRACT RENEWALS

The Central Valley Project Authorization Act of 1937 authorized construction of initial CVP project features for navigation, flood control, water storage, construction of distribution systems, and hydropower generation. The Rivers and Harbors Act of 1940 further authorized the construction of CVP facilities and mandated that dams and reservoirs be used first for river regulation, improvement of navigation, and flood control; second for irrigation and domestic users; and third for power. This authorization was amended by the American River Division Authorization Act of 1949, the Trinity River Act of 1955, the San Luis Authorizing Act of 1960, the Rivers and Harbors Act of 1962, the Auburn-Folsom South Unit Authorization Act of 1967; and the San Felipe Division Authorization Act of 1967 (Reclamation and Service, 1999). The CVP facilities include reservoirs on the Trinity, Sacramento, American, Stanislaus, and San Joaquin Rivers and conveyance facilities throughout northern and central California.

The Delta-Mendota Canal Unit is part of the Delta Division of the CVP. The Delta Division provides for the transport of water through the central portion of the Central Valley, including the Sacramento-San Joaquin Delta. It acts as a hub around which the CVP revolves. The Delta Division is complex in its operations, and all features do not operate in conjunction with one another. The Delta Division facilities provide for the transport of water through both the San Francisco Bay-Delta Estuary and the Sacramento-San Joaquin River and provide for the delivery of water to CVP contractors in both eastern Contra Costa County and the San Joaquin Valley. The Contra Costa Canal transports water to Contra Costa County. The Delta Cross Channel moves water from the Sacramento River through an excavated channel and natural channels to the Tracy Pumping Plant, which then pumps water into the Delta-Mendota Canal. The Delta-Mendota Canal then delivers water to the west side of the San Joaquin Valley, ending at the Mendota Pool, 30 miles west of the city of Fresno.

Twenty contractors currently receive water from the Delta-Mendota Canal. These contractors are:

- Banta-Carbona Irrigation District
- Broadview Water District
- Centinella Water District
- City of Tracy
- Coehlo Family Trust
- Del Puerto Water District
- Eagle Field Water District
- Fresno Slough Water District
- James Irrigation District
- Laguna Water District
- Mardelia Hughes property
- Mercy Springs Water District
- Oro Loma Water District
- Patterson Water District
- Plain View Water District
- Reclamation District #1606
- The West Side Irrigation District
- Tranquillity Irrigation District
- West Stanislaus Water District
- Widren Water District

A description of each of the 20 contractors and a discussion of their individual CVP allocations and the status of existing long-term contracts are included in Chapter 4 of this EA.

RELATION TO THE CVPIA PEIS

The PEIS provided a programmatic evaluation of the impacts of implementing the CVPIA. Four alternatives, 17 supplemental analyses, the Preferred Alternative, and a No-Action Alternative were evaluated in the PEIS. The impact analysis in the PEIS was completed at a subregional level, but presented within the PEIS on a regional basis for the Sacramento Valley, San Joaquin Valley, and Tulare Lake regions. The PEIS No-Action Alternative assumed that existing water service contracts would be renewed under the same terms as expiring contracts. The Final PEIS included a Preferred Alternative that addressed the regional impacts and benefits of the general method that Reclamation anticipated for implementation of CVPIA, including long-term contract renewal.

Following completion of the PEIS, Reclamation prepared additional environmental documentation for renewal of long-term water service and repayment contracts, including this EA to address the site-specific impacts relating to contract renewals within the Delta-Mendota Canal Unit of the Delta Division.

PROJECT AREA

The project area for this EA includes portions of Fresno, Merced, San Joaquin, and Stanislaus Counties. The project area is further defined as including the service areas of Banta-Carbona Irrigation District, Broadview Water District, Centinella Water District, the City of Tracy, Coehlo Family Trust, Del Puerto Water District, Eagle Field Water District, Fresno Slough Water District, James Irrigation District, Laguna Water District, Mardelia Hughes property, Mercy Springs Water District, Oro Loma Water District, Patterson Water District, Plain View Water District, Reclamation District #1606, The West Side Irrigation District, Tranquillity Irrigation District, West Stanislaus Water District, and Widren Water District.

STUDY PERIOD

The analysis for this EA was conducted for projected conditions to the Year 2026, which will extend through the first period of renewal for the 25-year long-term water service contracts. No interim time period conditions were considered or evaluated with respect to build-out conditions or changes in the CVP contract.

PUBLIC INVOLVEMENT PROCESS

Reclamation started the preparation of this EA during the scoping phase. Scoping served as a fact-finding process that helped identify public concerns and recommendations about the NEPA process, issues that would be addressed in this EA, and the scope and level of detail for analyses. Scoping activities began in October 1998 after a Notice of Intent to prepare the environmental documents on the long-term contract renewal of CVP repayment and water service contracts.

The long-term contract renewal process was conducted as a public process. Throughout the contract renewal process, meetings were held with the contractors, other agencies, interest groups, and the public. Issues raised during the public involvement process were addressed in the negotiation process and were used in the preparation of this EA. A more detailed discussion of the public involvement process is provided in Chapter 6 of this EA.

RELATED ACTIVITIES– EFFECTS ON WATER SUPPLY RELIABILITY

Reclamation is implementing several activities as part of its obligation to manage and operate the CVP.

The alternatives considered in this EA, including the No Action Alternative, are limited to those actions considered and defined to an appropriate level of detail to be analyzed in this EA. However, it is recognized that related, non-contract renewal issues and other considerations that may not be well-defined at this point in time may affect the overall water supply reliability conditions in the project area and the results of implementation of the long-term contract renewal process.

The PEIS described many of the impacts associated with the same actions discussed below. This description evaluates those potential impacts from the perspective of issues associated with long-term contract renewal alternatives. In addition, several items discussed in the PEIS cumulative effects analysis have continued to be modified as they are implemented. Those changes are reflected in the following discussion.

Other actions that may contribute to water supply reliability in the Delta-Mendota Canal Unit include the following actions, which are described below.

C Implementation of the Bay-Delta Plan Accord

- Completion of water transfer actions, including the Draft EIR for Eastside/Westside Water Transfer/Exchange in the San Joaquin Valley
- Completion of the Conformed Place of Use EIR for CVP Water Supplies
- Recommendations for increased instream flows in the Trinity River
- Implementation of the Sacramento and San Joaquin River Basins Comprehensive Study
- Implementation of the Sacramento Area Water Forum Proposal on the American River and completion of the EIR
- Changes in federal farm programs
- Changes in demand for agricultural products
- Implementation of Yield Increase Plan
- Additional listings of special-status species

IMPLEMENTATION OF BAY-DELTA PLAN ACCORD

As a follow-up to adoption of the 1995 Water Quality Control Plan for the San Francisco/ Sacramento-San Joaquin Delta Estuary, the State Board is evaluating alternatives for implementing that plan. The process included the State Board water rights process and the CALFED Bay-Delta Program.

State Board Water Rights Process

The purpose of the State Board's water rights process for Delta water quality and quantity is to develop a methodology to provide adequate flows to meet the Bay-Delta Plan Accord. The State Board is evaluating several alternatives that would require different agencies, including the CVP and SWP, to release water in a manner to protect Delta quality.

This process may increase the amount of water provided by other water rights holders to meet Bay-Delta water quality standards, but it is anticipated that the impacts to the CVP water supply would not be more severe than the impacts presented in the PEIS and this EA. Consequently, operations of upstream projects may change. Because the outcome is not fully developed, a conservative assumption was used in modeling for the PEIS and this EA. It was assumed that the Bay-Delta Accord criteria would be the long-term plan for the Delta. If instream flows provided by the other water rights holders increase, some portion

of the CALFED Ecosystem Restoration Program environmental flows could be satisfied by this water rights process, which may reduce the amount of water that the program needs to acquire from willing sellers. It may also reduce the amount of water that the program needs to develop or may allow for the developed water to be used more effectively in meeting program objectives. Any additional demand on water right holders could decrease the amount of water available for transfer.

CALFED Bay-Delta Program

The CALFED Bay-Delta Program is a cooperative effort of 15 state and federal agencies with regulatory and management responsibilities in the Bay-Delta system. The mission of the CALFED Bay-Delta Program is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. Since May 1995, the CALFED Bay-Delta Program has been addressing the complex issues that surround the Bay-Delta. The CALFED Agencies have completed the Final Programmatic EIS/EIR including the Preferred Program Alternative. The August 28, 2000 signing of the CALFED Programmatic Record of Decision marked the beginning of implementation for the 30-year program and details on implementation during Stage 1, the first seven years of the implementation.

The CALFED Preferred Program Alternative includes the following components: ecosystem restoration, watershed protection, water supply reliability, water storage and conveyance, environmental water account and commitments, water use efficiency and conservation, water quality improvements, water transfers, levee system integrity, science program, establishment of a governance structure for implementation of CALFED, and a regional approach to ecosystem/water management.

Many of these programs could improve water supply reliability and water quality for CVP water service contractors, especially those located south of the Delta. The CALFED Preferred Program Alternative includes the following tools to improve water supply reliability and water quality.

- Water Use Efficiency Program (agricultural, urban, and wetland water conservation and water recycling)
- Water Transfer Program
- Conveyance, including South Delta Improvements
- Surface and groundwater storage

- Operational strategies, such as real-time diversion management through use of the Environmental Water Account

- Water quality improvements to enable users to divert more water to storage during periods of high Delta water quality, reduce contaminants and salinity that impair Delta water quality, evaluate alternative approaches to address disinfection byproducts and salinity issues, and enable voluntary exchanges or purchases of high quality source waters for drinking water uses.

In addition, other parts of the CALFED Program can provide water supply reliability and water quality benefits. These include the Watershed Program and real-time monitoring through the Science Program.

CALFED's goals for water supply reliability include:

- Increasing the utility of available water supplies (i.e., making water suitable for more uses and reuses)

- Improving access to existing or new water supplies, in an economically efficient manner, for environmental, urban and agricultural beneficial uses

- Improving flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability.

The CALFED Final Programmatic EIS/EIR shows that on an annual basis, without additional storage, the Preferred Program Alternative would increase long-term period Delta exports by an additional 250,000 to 380,000 acre-feet over the CALFED No Action Alternative, which is similar to the PEIS No-Action Alternative. With additional storage, the Preferred Program Alternative would increase annual Delta exports by 490,000 to 900,000 acre-feet over the CALFED No Action Alternative.

On an annual basis, without additional storage, the Preferred Program Alternative would increase dry and critical year Delta exports by an additional 50,000 to 180,000 acre-feet over the CALFED No Action Alternative. With additional storage, the Preferred Program Alternative would increase annual Delta exports from 180,000 to 670,000 acre-feet over the CALFED No Action Alternative.

In addition, water conservation and recycling would save additional water for use. Water use efficiency potential varies significantly in California, depending on the region of the state and the sector involved. Working with the stakeholder steering committees and other

technical experts, CALFED Agencies have developed ranges of estimated water savings during Stage 1. These estimates include only water that is currently unavailable for other uses because it is lost to excessive evaporation or drains to the ocean or some other unusable destination. In addition, water can be made available through water reclamation projects. These water savings would include 520,000 to 688,000 acre-feet from urban uses, 260,000 to 350,000 acre-feet from agricultural uses, and 225,000 to 310,000 acre-feet in water reclamation projects for both urban and agricultural uses.

Actions initiated in the first four years of Stage 1 to improve storage and conveyance capacity will substantially increase water supply reliability in the later years, but these benefits will not be realized until the new facilities come on line. Similarly, it will take years to implement and fully realize the water supply benefits of water use efficiency, recycling, and other conservation measures. Therefore, the greatest challenge to improving water supply reliability lies in the first four years of Stage 1. To address these water supply reliability challenges in this short period, the CALFED Record of Decision outlines the following actions:

- Establishment of an Environmental Water Account with an average of 380,000 acre-feet set aside annually in the first years to provide additional water for fishery purposes beyond the regulatory baseline.
- Establishment of a Regulatory Baseline by delineating existing regulatory requirements and clarifying implementation of specific regulatory actions.
- A commitment that there will be no delivery reductions, beyond the baseline regulatory levels resulting from measures to protect fish.
- Seek State Board approval of a Joint Point of Diversion and share water derived from the Joint Point of Diversion between the CVP and the Environmental Water Account.
- Implement conjunctive management projects, water conservation measures and water transfers.
- Begin implementation of storage projects.
- Allocate Proposition 13 funds dedicated to interim water supply reliability and water quality.

The CALFED Record of Decision also concludes that these actions in the first four years are likely to improve Delta exports for CVP south-of-Delta agricultural water service contractors, as cited below.

> *In the first four years of Stage 1, it is anticipated that water deliveries will remain at recent levels for most water users who depend upon water from the CVP, including Exchange Contractors, North of Delta CVP agricultural contractors, refuges, and M&I contractors, as well as for SWP contractors and non-project water users. It is also anticipated that implementation of Joint Point of Diversion, operational flexibility, interagency cooperation, EWA implementation, and other cooperative water management actions (some of which may require further specific environmental review) will result in normal years in an increase to CVP south-of-Delta agricultural water service contractors of 15 percent (or greater) of existing contract totals to 65 to 70 percent. This normal year supply improvement may not be achieved in all years due to annual hydrologic variability and its impact on carryover storage conditions. Substantial progress toward implementation of other program elements, such as development of EWA assets, is also necessary. Water supplies in dry years are likely to be less than the anticipated amounts and more in above normal years. As discussed in the ROD, CALFED Agencies are committed to working with local agencies to implement these regional supply actions and to support local water management actions including conservation and other local measures. Part of this effort will include development of a plan for alternative refuge supplies and conveyance.*

WATER TRANSFERS

The use of water transfers to allow water trades between willing sellers and buyers is expected by many experts to be used increasingly in the future. Transfers provide an opportunity to increase or replace water supplies to support future demands. Overall, implementation of water transfer programs will meet part of the water demand that has been identified by the California Department of Water Resources as being unmet by current water supplies. It identified 2.9 to 4.9 million acre-feet of projected water demand that would not be met by existing water facilities, water conservation, and wastewater reclamation if all entitlements and water rights continue to be delivered to existing users. Water transfers can be used in the future to reduce the currently unmet future demand. Therefore, water transfers may be beneficial from a cumulative statewide perspective.

However, each transfer proposal must be evaluated individually to determine direct or indirect impacts at a project-specific level.

Cumulative impacts associated with the transfer of water must consider the impacts of other water transfers that would occur throughout the Central Valley. Reclamation has purchased water in the Sacramento and San Joaquin Valleys from water rights holders to improve instream fishery flows, Delta outflows, and refuge water supplies. Water also has been purchased on an annual basis by agricultural users on both the eastern and western sides of the San Joaquin Valley to improve water reliability. Water users located in the watersheds of the upper Sacramento, Feather, Yuba, and Bear Rivers have participated or are considering participation in short-term water transfers of one- to five-year periods for water supplies and/or fish and wildlife uses. However, projects and locations have not been fully evaluated at this time.

Specific water transfers may reduce the ability of other agencies to purchase and transfer water. If the amount of water available for transfers is reduced, the users who do not purchase the water will either increase groundwater withdrawals, which may lead to increased rates of overdraft and subsidence, or purchase more expensive water supplies, which could increase the cost of agricultural crops or reduce net revenues.

Transfers of water held in post-1914 water rights must be evaluated in some type of environmental documentation. These environmental documents would evaluate several issues, including the following items, which may have potential adverse impacts.

- Transfers that could reduce Delta inflow during certain critical time periods.
- Entrainment losses of some fish resulting from diversions at new locations.
- Losses of fish resulting from changes in flow patterns that may raise temperatures or dewater or flood spawning areas.
- Reduced reservoir levels and associated recreation actions.
- Reduced irrigated acreage and wetlands resulting from changes in water use or return flows.
- Reduced employment opportunities resulting from land fallowing to make the water available.

- Reduced groundwater levels resulting from the replacement of transferred water with additional withdrawals or from reductions in applied irrigation water that percolates into the aquifer.

It has been difficult in many cases to complete the environmental documentation and obtain approval from the State Board, SWP, or CVP during an irrigation season in a timely manner. If these approvals do not occur in a timely manner, unnecessary water may be purchased or users may decide to defer actions that would require full water supplies.

To alleviate this issue, several programmatic environmental documents have been completed and the overall concepts are included in the long-term contracts considered under Alternatives 1 and 2. For example, Reclamation completed the Eastside/Westside Water Transfer/Exchange EA for approval of annual exchange/transfer(s) of up to 150,000 acre-feet of CVP water between CVP contractors through an internal exchange of SWP water by the Kern County Water Agency. This approval process would be in effect for five years, between March 2001 and February 2006. Specific transfers under this type of program would be compared with the specific approved actions to determine that adverse environmental impacts would not occur.

Similar programmatic approaches for approval of transfers within regional trading zones are being considered under the CALFED process and through the Governor's Drought Contingency Panel.

CONFORMED PLACE OF USE EIR FOR CVP WATER SUPPLIES

Some existing CVP service areas that may be out of the State Board Authorized Place of Use have been served with CVP water. This process considered the impacts of expanding the State Board's designated place of use for CVP water to include these areas. The State Board adopted the EIR as part of the approval process. The modeling for the PEIS assumed that the process will be completed by 2025 and will include lands currently receiving CVP water. This process did not include Pajaro Valley Water Management Agency in the Authorized Place of Use. Therefore, the Authorized Place of Use would need to be modified to allow future delivery of the water assigned from Mercy Springs Water District to Pajaro Valley Water Management Agency. However, there would no net change in water supplies to the Delta-Mendota Canal Unit service area.

TRINITY RIVER STUDIES

In October 1984, the Service began a 12-year study to describe the effectiveness of increased flows and other habitat restoration activities to restore fishery populations in the

Trinity River. An EIS/EIR is being prepared under a concurrent program to evaluate alternatives to restore and maintain natural production of anadromous fish in the Trinity River mainstem downstream of Lewiston Dam. Historically, an average annual quantity of approximately 1.3 million acre-feet of water has been diverted from the Trinity River to the Sacramento River system (1964-1992). A change in the Trinity River flow requirements and a corresponding change in the amount of water diverted to the Sacramento River system could affect future flows to the Delta. Changes also could affect overall water supply reliability and carryover storage in Shasta Reservoir and water quality and temperature in the Sacramento River.

The alternatives in this EA assumed minimum instream flow requirements for Trinity River of 390,000 acre-feet per year in critical dry years to 750,000 acre-feet per year in extremely wet years, which represented an initial flow recommendation in the draft Trinity River Flow Evaluation. That initial Trinity River flow recommendation has since been refined in the Trinity River Flow Evaluation to 362,000 acre-feet per year in critical dry years to 815,000 acre-feet per year in extremely wet years. However, because a Record of Decision has not yet been signed that establishes the flow requirements for the Trinity River, this EA and the PEIS must make assumptions about Trinity River flows for the purposes of analysis. To provide a broad range to the analysis in this EA, the cumulative effects analysis assumed the final flow in the Trinity River Flow Evaluation, which is also the Preferred Alternative in the Trinity River Flow draft EIR/EIS.

TRANSFER OF OPERATIONS AND MAINTENANCE RESPONSIBILITIES

Several of the local water user groups provide a portion of the operation and maintenance requirements for CVP facilities that only serve that user group. For example, Contra Costa Water District is responsible for operating and maintaining the Contra Costa Canal and Contra Loma Reservoir. Alternative 1 provides for this type of operations and maintenance. Any transfer of operations and maintenance for specific facilities to non-federal entities could be completed under Alternative 1 after appropriate environmental documentation and approvals have been completed.

SACRAMENTO AREA WATER FORUM PROPOSAL

The Sacramento Area Water Forum (Water Forum), a diverse group of water managers, business and agricultural leaders, environmentalists, citizen groups, and local governments, was formed in September 1993 to evaluate water resources and future water supply needs of the Sacramento metropolitan region. During its early activities, the Water Forum defined its goals and mission, which are embodied in coequal objectives: (1) to provide a

reliable and safe water supply for the region's economic health and planned development through the year 2030 and (2) to preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River.

The Water Forum has formulated a Water Forum Proposal for the effective long-term management of water resources in the Sacramento area, including parts of Sacramento, Placer, and El Dorado Counties.

Many aspects of the Water Forum Proposal will reduce the overall amounts of new diversions from the Lower American River, especially in drier years. Purveyors signing the Water Forum Agreement would agree to reduce their diversions on the Lower American River in drier years to specified levels and to institute programs including water conservation measures and increased conjunctive use. In addition, because these reductions will not eliminate increased diversions to supply future needs, the Water Forum Proposal includes funding commitments for an interagency Habitat Management Program to provide habitat restoration and other benefits to the Lower American River ecosystem. All this was developed to avoid adverse environmental impacts.

Implementation of the Water Forum Proposal will require the involvement and approval of not only the Water Forum stakeholders, but also numerous state and federal agencies. These agencies will be subject to various regulatory standards including requirements of environmental review. It is anticipated that the Water Forum Successor Effort, funded pursuant to the Water Forum Agreement, will participate with Reclamation and other agencies in environmental documentation for any activities it may take associated with the Water Forum. The Water Forum Successor Effort will also monitor and coordinate implementation of the Water Forum Agreement by stakeholders and regulatory agencies.

CHANGES IN FEDERAL FARM PROGRAMS

The 1996 Farm Bill revised the way commodity payments are determined and decoupled the size of the payment from the actual production level. There remains, however, some uncertainty about how the U.S. Department of Agriculture will handle lands that are part of a grower's base acreage, yet are retired or fallowed as CVPIA is implemented. For purposes of this EA analysis, it was assumed that the Department of Agriculture would remove such lands from the grower's base acreage and reduce the deficiency payment accordingly. The estimates of changes in farm commodity payments are based on that assumption.

If, instead, growers who retire or fallow their land as part of CVPIA implementation continue to receive program payments associated with that land, then no savings would

accrue to the federal treasury. However, net revenues to the farmers would increase. This may lead to greater participation in the water transfer market, which may lead to a lower cost for water. Either or both of these impacts could increase the amount of water purchased by Reclamation for water acquisitions. Because the 1996 Farm Bill extends for only a limited number of years, great uncertainty remains about interactions between CVPIA and federal commodity programs.

CHANGING DEMAND FOR AGRICULTURAL PRODUCTS

The analyses in the PEIS and this EA used 1994 real prices and costs and did not attempt to estimate differential increases in prices and costs in the future. However, some evidence exists that demands for farm produce, especially fruits and vegetables grown in California, will increase in the future and cause their prices to increase faster than the overall inflation rate. If this occurs, then the cost associated with acreage reductions estimated in this study are understated. Higher value for crops would increase the cost of water or reduce the willingness of sellers to participate in the transfer market. This would decrease the opportunities for Reclamation to acquire water for fish and wildlife purposes.

Another view is that increasing competition from expanding production regions, especially in Central and South America, will hold future price increases below the level of inflation. Lower crop values would decrease the cost of water or increase the willingness of sellers to participate in the transfer market. Changes in demand could change the ratio of permanent to annual crops. If more permanent crops were planted, the effects of changes in water availability on an annual basis could become more substantial.

CVP YIELD INCREASE PLAN

As part of the CVPIA, the Least-Cost Yield Increase Plan was completed to describe possible actions to increase CVP yield. These yield increase actions ranged from purchase of water supplies, land fallowing, conjunctive use, water conservation, urban wastewater reuse, to offstream storage. New facilities, water reuse, and conjunctive use methods could reduce the shortages that are projected under the PEIS alternatives. The PEIS identified land fallowing and water conservation as measures to provide additional water supplies for fish and wildlife purposes. Implementation of water purchases for both purposes could cause conflicts or could be implemented to benefit both programs. For example, if water purchased to increase instream flows were diverted downstream of the critical reaches and stored in an offstream storage facility, both purposes would benefit. In addition, the cost to both users would be less.

ADDITIONAL LISTINGS OF SPECIAL-STATUS SPECIES

There is a high probability that new special-status species will be listed and possibly delisted. As the listings occur, Reclamation and the Service will follow the requirements of the Endangered Species Act and conduct consultation as required. Additional conservation actions are anticipated under the Conservation Program, Anadromous Fish Restoration Program, and CALFED which will aid in ecosystem restoration and improve the status of special-status species, and as a result, the need for future listings may be reduced.

Other related activities within the San Joaquin Valley and the Delta that affect water supply reliability are summarized in Table 1-1.

Table 1-1
Other Related Activities

Project or Study and Lead Agency	Summary
Long-Term Contract Renewal of Other Existing CVP Water Service Contracts - Reclamation	Reclamation is negotiating with other CVP water contractors for renewal of long-term contracts, including contractors.
Coordinated Operating Agreement (COA) and Operations Criteria and Plan (OCAP) Update - Reclamation and California Department of Water Resources	Provisions and requirements of the CVPIA, State Board Order 1641, the CALFED Bay-Delta Program, and other agency mandates require that the existing operational roles and responsibilities of the State Water Project (SWP) and CVP be reviewed and updated to provide appropriate long-term operating criteria and procedures for the two primary water storage and delivery projects affecting waterways of the Central Valley.
Vernalis Adaptive Management Plan	The Vernalis Adaptive Management Plan (VAMP) provides protective measures for fall-run chinook salmon and gathers scientific information on survival of salmon smolts through the Delta. The VAMP will be implemented through experimental flows on the San Joaquin River and export pumping rates with a temporary fish barrier on Old River during a one-month period each year (approximately April 15 to May 15). Additional attraction flows are targeted for October. The VAMP includes water acquisition for a pulse flow at Vernalis during the April and May period and other flows identified to meet anadromous fish flow objectives. The San Joaquin River Group Authority, Reclamation, and the Service prepared a Final EIS/EIR for the water acquisition component of VAMP in January 1999.

Table 1-1
Other Related Activities

Project or Study and Lead Agency	Summary
Eastside/Westside Water Transfer Exchange–Reclamation	A draft EA for the Eastside/Westside Water Transfer/Exchange has recently been completed. This provides for the transfer of CVP water from eastside contractors to westside contractors through an internal exchange of SWP water.
Temporary Transfers and Exchanges of CVP Water–Reclamation	A draft EA was prepared in March 2000 to approve the historic temporary transfer and exchange of CVP water between south-of-the-Delta CVP contractors (and within the central San Joaquin Valley) or between contractors and wildlife refuges. The approval would provide for a five-year blanket approval. These transfers or exchanges are typically scheduling adjustments between districts or are made for more efficient water management.
San Joaquin River Riparian Habitat Restoration Program–Reclamation	A pilot project is being conducted on the San Joaquin River to assist in the development of a riparian habitat restoration plan for the upper San Joaquin River. Releases from Friant Dam will be limited from June 9 to October 1, 2000, to obtain data on the establishment of riparian seedlings in the downstream channel and on groundwater and surface water conditions in the project area. After completion of the project, efforts will continue to optimize riverine and riparian conditions along the San Joaquin River with no net loss of water supply to existing water users.
Tracy Fish Facility Improvement Program–Reclamation	The Tracy Fish Facility Improvement Program was established to develop and implement actions that would mitigate for fishery impacts associated with the operations of the Tracy Pumping Plant pursuant to the CVPIA. The facility would be built and operated to test and evaluate best available technology and provide timely information on critical fish issues related to new fish protection facilities. Improvements that would be made will not threaten current contracted water deliveries through the Tracy Pumping Plant. A draft EA and Initial Study was competed in July 2000.
Grasslands Bypass Project	The Grasslands Bypass Project was implemented to provide drainage service for Broadview Water District, Oro Loma Water District, and Mercy Spring Water District. Its primary goal is to remove unusable agricultural drainage water from water delivery channels and ditches in the Grassland Water District and place it in a single conveyance facility for transport to the San Joaquin River. The time period for the project is from 1996 to 2001. An EIR/EIS is being prepared to continue the project through 2009.

DELTA-MENDOTA CANAL UNIT

ENVIRONMENTAL ASSESSMENT
LONG-TERM CONTRACT RENEWAL

Description of Alternatives

October 2000

Chapter 2
DESCRIPTION OF ALTERNATIVES

This chapter summarizes the long-term water service contract negotiations process and describes the alternatives considered in this EA.

LONG-TERM WATER SERVICE CONTRACT NEGOTIATIONS PROCESS

The CVPIA states that the Secretary shall, upon request, renew any existing long-term irrigation repayment or water service contract for the delivery of CVP water for a 25-year period and may renew such contracts for successive periods of up to 25 years each. Consistent with the 1963 Act, M&I contracts shall be renewed for successive periods up to 40 years, each under terms and conditions that are mutually agreeable. The CVPIA also states that no renewals shall be authorized until appropriate environmental review, including the PEIS, has been completed. The PEIS provided a programmatic environmental analysis and identified the need for site-specific environmental documents for the long-term contract renewal process.

The CVPIA also states that contracts expiring before the PEIS has been completed may be renewed for interim periods. The interim renewal contracts reflect existing Reclamation law, including modifications resulting from the Reclamation Reform Act and applicable CVPIA requirements. The initial interim contract renewals were negotiated in 1994 with subsequent renewals for periods of two years or less to provide for continued water service. Many of the provisions from the interim contracts were assumed to be part of the contract renewal provisions in the description of the PEIS Preferred Alternative.

In 1998, the long-term contract renewal process was initiated. Reclamation reviewed the interim contract provisions that were consistent with Reclamation law and other requirements, comments from the Draft PEIS, and comments obtained during the interim contract renewal process. Reclamation proposed that the overall provisions of the long-term contract would be negotiated with representatives of all CVP water service contractors. Following the acceptance of the CVP-wide provisions, Reclamation proposed that division-specific provisions and, finally, contractor-specific provisions would be negotiated. Reclamation also proposed that all water service contracts except those for Central San Joaquin Irrigation District, Stockton East Water District, and Colusa Drain Mutual Water Company would be renewed pursuant to this action. Contract renewals for these three districts would be delayed until a water management study for their primary sources of CVP water, the Stanislaus and Sacramento Rivers, had been completed.

Reclamation published the initial proposed contract in November 1999. Several negotiations sessions were held throughout the next six months. The CVP water service contractors published a counterproposal in April 2000. The November 1999 proposal represents one "bookend" for negotiations and the April 2000 proposal represents the basis for the other "bookend." The results of the negotiations are reflected in the subsequent proposals. The primary differences between the proposals are summarized in Table 2-1. Table 2-2 compares the environmental consequences of long-term contract renewal Alternatives 1 and 2 to those of the No-Action Alternative.

ISSUES CONSIDERED AS PART OF LONG-TERM CONTRACT RENEWALS

The long-term contract renewal process addresses several other issues in addition to the contract provisions. These issues include the needs analyses, changes in service areas, and water transfers.

NEEDS ANALYSES

The water rights granted to the CVP by the State Board requires the federal government to determine that the water is being used in a beneficial manner. The needs analysis methodology was developed to indicate that the CVP water is being used beneficially. The needs analysis was computed for each district within the various divisions or units of the CVP using a multiple-step approach. First, the existing water demand for each district was calculated based on historic water uses. For agricultural contractors, crop acreage, cropping patterns, crop water needs, effective precipitation, and conveyance losses were reviewed. For M&I contractors, residential, commercial, industrial, institutional, recreational, and environmental uses; landscape coefficients; system losses; and landscape acreage were reviewed. Second, future changes in water demands based upon crops, M&I expansion, and changes in efficiencies were reviewed. Third, existing and future water supplies were identified for each district, including groundwater and other surface water supplies. The initial calculation of CVP water needs was limited by the assumption that groundwater pumping would not exceed the safe yield of the aquifer. In addition, the actual water needs were calculated at each division or unit level to allow for annual intraregional transfers.

Beneficial and efficient future water demands were identified for each district. The demands were compared to available non-CVP water supplies to determine the need for CVP water. If the need was less than the contract amount, the CVP water service contract amount could be reduced. Because the CVP was initially established as a supplemental water supply for areas with inadequate supplies, the needs for most districts were at least equal to the CVP water service contract and frequently exceeded the previous contract

amount. However, this environmental analysis does not include increased total contract amounts. Therefore, the renewed CVP contract amount will be limited by the existing CVP contract quantity.

CHANGES IN WATER SERVICE AREAS

This environmental analysis does not consider future changes in water service area boundaries for the use of CVP water. Any future changes to water service area boundaries for the use of CVP water will be evaluated in separate technical and environmental analyses.

WATER TRANSFERS

Several different types of transfers are considered for long-term contract renewals. Intra-CVP contract transfers have occurred regularly throughout the CVP and are frequently limited to scheduling changes between adjoining districts. Reclamation has historically issued and will continue to address these types of transfers under separate environmental documents.

It is recognized that water transfers will continue to occur and that the CVP long-term contracts will provide the mechanism. Because the CVPIA has allowed these transfers, as evaluated in the PEIS for the Preferred Alternative, the No-Action Alternative includes water transfer provisions. These provisions for transfers are also included in both Alternatives 1 and 2. However, it would be difficult to identify all of the water transfer programs that could occur with CVP water in the next 25 years. Reclamation would continue with separate environmental documents for proposed transfers establishing criteria and protocols to allow rapid technical and environmental review of future proposed transfers.

DEVELOPMENT OF ALTERNATIVES

Three alternatives were identified for the renewal of long-term contracts between Reclamation and the contractors in the Delta Division/Delta-Mendota Canal Unit. The alternatives present a range of water service agreement provisions that could be implemented for long-term contract renewals. The first alternative, the No-Action Alternative, consists of renewing existing water service contracts as described by the Preferred Alternative of the PEIS. In November 1999, Reclamation published a proposed long-term water service contract. In April 2000, the CVP Contractors presented an alternative long-term water service contract. Reclamation and the CVP Contractors have continued to negotiate the CVP-wide terms and conditions with these proposals serving as the basis for an analysis of such "bookends." This EA also considers these proposals with the No-Action Alternative as bookends to be considered for the environmental

documentation to evaluate the impacts and benefits of renewing long-term water service contracts.

NO-ACTION ALTERNATIVE

The No-Action Alternative assumes renewal of long-term CVP water service contracts for a 25-year period in accordance with implementation of the CVPIA as described in the PEIS Preferred Alternative. The PEIS Preferred Action assumed that most contract provisions would be similar to many of the provisions in the 1997 CVP Interim Renewal Contracts, which included contract terms and conditions consistent with applicable CVPIA requirements. In addition, the No-Action Alternative assumed tiered pricing provisions and environmental commitments as described in the PEIS Preferred Alternative. The provisions of the No-Action Alternative also are summarized in Table 2-1.

These provisions were described in the Final PEIS. Several applicable CVPIA provisions summarized in the description of the No-Action Alternative because they are included in a different manner in Alternatives 1 and/or 2 and, therefore, could result in changes in environmental impacts or benefits. These issues include tiered water pricing, definition of M&I water users, water measurement, and water conservation.

TIERED WATER PRICING

Tiered water pricing in the No-Action Alterative is based upon the use of an "80/10/10 Tiered Water Pricing from Contract Rate to Full Cost" approach including appropriate ability-to-pay limitations. The terms *Contract Rate* and *Full Cost Rate* are defined by CVP rating setting policies and PL 99-546 and the Reclamation Reform Act, respectively. The Contract Rate for irrigation and M&I water includes the contractor's allocated share of CVP main project operation and maintenance (O&M) expenses, O&M deficit, if any, and capital cost. The contract rate for irrigation water does not include interest on capital. The contract rate for M&I water includes interest on capital, computed at the CVP M&I interest rate. The Full Cost Rate for irrigation and M&I water includes the interest at the Reclamation Reform Act interest rate. Under this approach, the first 80 percent of maximum contract total would be priced at the applicable Contract Rate. The next 10 percent of the contract volume would be priced at a value equal to the average of the Contract Rate and Full Cost Rate. The final 10 percent of the contract volume would be priced at Full Cost Rate.

In addition to the CVP water rate, contractors are required to pay Restoration Fund[1] payments on all deliveries of CVP water. Reclamation law and policy provides full or partial relief to irrigation contractors on Restoration Payments and the capital rate component of the water rate. Ability-to-pay relief, relative to the irrigation water rate, is fully applicable only to the first 80 percent of the contract total. Ability-to-pay relief is not applicable to the third tier water rate. The second tier may reflect partial relief. Ability-to-pay relief is equal to the average of the first and third tiers. The relief could be up to 100 percent of the capital cost repayment and is based upon local farm budgets. The ability-to-pay law and policy do not apply to CVP operation and maintenance costs, M&I water costs, or any non-CVP costs.

The prices of CVP water used in the No-Action Alternative are based upon 1994 irrigation and M&I CVP water rates.

DEFINITION OF M&I USERS

The definition of M&I users was established in portions of a 1982 Reclamation policy memorandum. In many instances, the definition of municipal users is easily defined. However, with respect to small tracts of land, the 1982 memorandum defined agricultural water as agricultural water service to tracts that can support $5,000 gross income for a commercial farm operation. The memorandum indicates that this criteria can be met by parcels greater than two acres. Based on this analysis, the CVP has generally applied a definition of five acres or less for M&I uses in the CVP for many years. The CVP contractors can seek a modification for a demonstrated need of agricultural use on parcels between two and five acres in size and may request such a modification from the Contracting Officer.

WATER MEASUREMENT

The No-Action Alternative includes water measurement at every turnout or connection to measure CVP water deliveries. It is assumed that if other sources are commingled with the CVP water, including groundwater or other surface waters, the measurement devices would report gross water deliveries. Additional calculations would be required to determine the exact quantity of CVP water. However, if groundwater or other surface waters are delivered by other means to the users, the No-Action Alternative did not include additional measurement devices except as required by the individual user's water conservation plan.

[1]The Restoration Fund was established in Section 3403(i) of the CVPIA and made available for deposit of donations of any other source and revenues from the renewal of existing long-term contracts, water transfers, and the development and implementation of a plan to address fish, wildlife, and habitat concerns on the San Joaquin and Stanislaus Rivers. Funds available in the Restoration Fund can be used to carry out habitat restoration, improvement, and acquisition activities.

WATER CONSERVATION

The water conservation assumptions in the No-Action Alternative include water conservation actions for municipal and on-farm uses assumed in the California Department of Water Resources Bulletin 160-93 and conservation plans completed under the 1982 Reclamation Reform Act consistent with the criteria and requirements of the CVPIA. Such criteria address cost-effective Best Management Practices that are "economical and appropriate," including measurement devices, pricing structures, demand management, public information, and financial incentives. While measurement and pricing structures are required, they are not held to the "economical and appropriate" test.

ALTERNATIVE 1

Alternative 1 is based upon the proposal presented by the CVP water service contractors to Reclamation in April 2000. However, several issues included in the April 2000 proposal could not be included in Alternative 1 because they are not consistent with existing federal or state requirements or would require a separate federal action, as described below.

- The April 2000 proposal includes terms and conditions to provide a highly reliable water supply of a high water quality and provisions to improve the water supply capabilities of the CVP facilities and operations to meet this goal. *These issues were not included in Alternative 1 because they would require additional federal actions with separate environmental documentation and also limit the Secretary's obligation to achieve a reasonable balance among competing demands, as required by the CVPIA. Currently, Reclamation is completing the least cost plan to restore project yield in accordance with Section 3408(j) of CVPIA and under the CALFED program.*

- The April 2000 proposal includes language to require renewal of contracts after 25 years upon request of the contractor. *The study period for this EA is 25 years, which coincides with the contract period applicable to irrigation contracts required by CVPIA. Renewal after 25 years would be a new Federal Action and would require new environmental documentation.*

- The April 2000 proposal did not include provisions for compliance with biological opinions. *Biological consultations are required by the Consultation and Coordination requirements established by Executive Order for all Reclamation activities. These are binding on Reclamation and provisions are needed to address this requirement.*

- The April 2000 proposal included provisions for water transfers. *It is recognized that water transfers will continue and that the CVP long-term contracts will*

provide the mechanisms for the transfers. However, it would be difficult to identify all of the water transfer programs that could occur with CVP water in the next 25 years. Reclamation would continue with separate environmental documents for transfers, establishing criteria to allow rapid technical and environmental review of proposed transfers.

- The April 2000 proposal includes provisions for transfer of operations and maintenance requirements. *It is recognized that transfers of operation and maintenance requirements to the group of contractors will continue and that the CVP long-term contracts will provide the mechanisms for such transfers. However, it would be difficult to identify all of the operation and maintenance transfer programs that could occur with CVP water in the next 25 years. Reclamation would require separate environmental documents for such transfers.*

- The April 2000 proposal includes provisions for resolution of disputes. *Assumptions for resolution of disputes were not included in Alternative 1 and at this time would not appear to affect environmental conditions.*

- The April 2000 proposal includes provisions for expansion of the CVP service areas by the existing CVP water contractors. *The study area for the long-term contract renewal process is defined by the existing service area boundaries. Expansion of the service area boundaries would be a new Federal Action and would require separate environmental documentation.*

The April 2000 proposal did include several provisions that were different than the assumptions for No Action Alternative and these provisions are included in Alternative 1, as summarized in Table 2-1.

The April 2000 proposal also included several provisions that involve specific language changes that would not significantly modify CVP operations in a manner that would affect the environment as compared to the No-Action Alternative, but could affect specific operations of a contractor, as described in Table 2-1.

It should be noted that the tiered pricing assumptions (including unit prices for CVP water) and definition of M&I users in Alternative 1 would be the same as in the No-Action Alternative.

ALTERNATIVE 2

Alternative 2 is based upon the proposal presented by Reclamation to CVP water service contractors in November 1999. However, several provisions included in the November

1999 proposal could not be included in Alternative 2 because they would require a separate Federal Action, as described below.

- The November 1999 proposal included provisions for the contractor to request approval from Reclamation of proposed water transfers. *Water transfers were not included in Alternative 2 because such actions cannot now be definitely described, essentially constitute a separate Federal Action, and would require separate environmental documentation.*

- The November 1999 proposal includes provisions for transfer of operations and maintenance to third parties. *Operations and maintenance transfers were not included in Alternative 2 because these actions would be a separate Federal Action and would require separate environmental documentation.*

The November 1999 proposal did include several provisions that were different than the assumptions for No-Action Alternative and included in Alternative 2, as summarized below and in Table 2-1. The primary differences are related to tiered pricing and the definition of M&I users.

TIERED WATER PRICING

Tiered water pricing in Alterative 2 is based upon a definition of Category 1 and Category 2 water supplies. *Category 1* is defined as the quantity of CVP water that is reasonably likely to be available for delivery to a contractor and is calculated on an annual basis as the average quantity of delivered water during the most recent five-year period. For the purposes of this alternative, the Category 1 water supply is defined as the "contract total." *Category 2* is defined as that additional quantity of CVP water in excess of Category 1 water that may be delivered to a contractor in some years. Under Alternative 2, the first 80 percent of Category 1 volume would be priced at the applicable Contract Rate for the CVP. The next 10 percent of the Category 1 volume would be priced at a rate equal to the average of the Contract Rate and Full Cost Rate as defined by Reclamation law and policy. The terms *Contract Rate* and *Full Cost Rate* are defined by the Reclamation Reform Act. The Contract Rate is equal to O&M expenses, O&M deficit, if any, and capital costs without interest on capital. The Full Cost Rate includes the interest charges. The final 10 percent of the Category 1 volume would be priced at Full Cost Rate as required by the CVPIA. All Category 2 water, when available, would be priced at Full Cost Rate. It should be noted that Category 1 and Category 2 volumes will change every year based upon the average deliveries for the "most recent 5 years," with limited exception, based upon the findings of the water needs assessment. Alternative 2 assumes that the sum of Category 1 and Category 2 water is equal to the maximum quantity included in the contractor’s existing water service contract. The quantity is the

same as the No-Action Alternative and Alternative 1. The terms *Contract Rate* and *Full Cost Rate* are discussed under Tiered Pricing for the No-Action Alternative. The same ability-to-pay adjustments would be applicable to Restoration Fund payments and tiered water rates as described in the No-Action Alternative.

The prices of CVP water used in Alternative 2 are based upon irrigation and M&I CVP water rates presented in the November 17, 1999 Financial Workshop Handouts 1 and 2.

DEFINITION OF M&I USERS

The definition of M&I water includes all tracts less than or equal to five acres unless the Contracting Officer is satisfied that the use of such water meets the definition of "irrigation water."

ALTERNATIVES CONSIDERED BUT ELIMINATED

NONRENEWAL OF LONG-TERM CONTRACTS

Nonrenewal of existing contracts is considered infeasible based on Section 3404(c) of the CVPIA. This alternative was considered but eliminated from analysis in this EA because Reclamation has no discretion not to renew the contracts.

REDUCTION IN CONTRACT AMOUNTS

Reduction of contract amounts was considered in certain cases, but rejected from analysis. The reason for this twofold. First, water needs analyses have been completed for all contracts, and in almost all cases, the needs exceed or equal the current total contract amount. Second, in order to implement good water management, the contractors need to be able to store or immediately use water available in wetter years when more water is available. By quantifying contract amounts in terms of the needs analyses and the CVP delivery capability, the contractors can make their own economic decisions. Allowing the contractors to retain the full water quantity gives them assurance that the water will be available to them for storage investments. In addition the CVPIA, in and of itself, achieves a balance, in part through its dedication of significant amounts of CVP water and actions to acquire water for environmental purposes.

SELECTION OF THE PREFERRED ALTERNATIVE

It is anticipated that the final contract language and the long-term contract renewal Preferred Alternative will represent a negotiated position between Alternatives 1 and 2. Therefore, it is anticipated that the environmental consequences of the Preferred Alternative will be either equal to or less than those identified for Alternative 1, Alternative 2, or No-Action Alternative.

Table 2-1
Comparison of Contract Provisions Considered in Alternatives

Provision	No-Action Alternative Based on PEIS and Interim Contracts	Alternative 1 Based on April 2000 Proposal	Alternative 2 Based on November 1999 Proposal
Explanatory Recitals	Assumes water rights held by CVP from the State Board for use by water service contractors under CVP policies	Assumes CVP Water Right as being held in trust for project beneficiaries that may become the owners of the perpetual right	Same as No-Action Alternative
	Assumes that CVP is a significant part of the urban and agricultural water supply of users	Assumes CVP as a significant, essential, and irreplaceable part of the urban and agricultural water supply of users	Same as No-Action Alternative
	Assumes increased use of water rights, need to meet water quality standards and fish protection measures, and other measures constrained use of CVP	Assumes that CVPIA impaired ability of CVP to deliver water	Same as No-Action Alternative
	Assumes the need for the 3408(j) study	Assumes implementation of yield increase projects per 3408(j) study	Same as No-Action Alternative
	Assumes that loss of water supply reliability would have impact on socioeconomic conditions and change land use	Assumes that loss of water supply reliability would have significant adverse socioeconomic and environmental impacts in CVP service area	Same as No-Action Alternative
Definitions			
Charges	Charges defined as payments required in addition to Rates	Assumes rewording of definition of Charges to exclude both Rates and Tiered Pricing Increments	Same as No-Action Alternative
Category 1 and Category 2	Tiered Pricing as in PEIS	Not included	Tiered Pricing for Categories 1 and 2
Contract Total	Contract Total described as Total Contract	Same as No-Action Alternative	Described as basis for Category 1 to calculate Tiered Pricing
Landholder	Landholder described in existing Reclamation Law	Assumes rewording to specifically define Landholder with respect to ownership, leases, and operations	Assumes rewording to specifically define Landholder with respect to ownership and leases

Table 2-1
Comparison of Contract Provisions Considered in Alternatives

Provision	No-Action Alternative Based on PEIS and Interim Contracts	Alternative 1 Based on April 2000 Proposal	Alternative 2 Based on November 1999 Proposal
M&I water	Assumes rewording to provide water for irrigation of land in units less than or equal to five acres as M&I water unless Contracting Officer is satisfied use is irrigation	M&I water described for irrigation of land in units less than or equal to 2 acres	Same as No-Action Alternative
Terms of contract—right to use contract	Assumes that contracts may be renewed	States that contract shall be renewed	Same as No-Action Alternative
	Assumes convertibility of contract to a 9(d) contract same as existing contracts	Includes conditions that are related to negotiations of the terms and costs associated with conversion to a 9(d) contract	Same as No-Action Alternative
Water to be made available and delivered to the contractor	Assumes water availability in accordance with existing conditions	Similar to No-Action Alternative	Actual water availability in a year is unaffected by Categories 1 and 2
	Assumes compliance with Biological Opinions and other environmental documents for contracting	Not included	Same as No-Action Alternative
	Assumes that current operating policies strive to minimize impacts to CVP water users	Assumes that CVP operations will be conducted in a manner to minimize shortages and studies to increase yield shall be completed with necessary authorizations	Same as No-Action Alternative
Time for delivery of water	Assumes methods for determining timing of deliveries as in existing contracts	Assumes minor changes related to timing of submittal of schedule	Same as No-Action Alternative
Point of diversion and responsibility for distribution of water	Assumes methods for determining point of diversion as in existing contracts	Assumes minor changes related to reporting	Same as No-Action Alternative
Measurement of water within district	Assumes measurement for each turnout or connection for facilities that are used to deliver CVP water as well as other water supplies	Assumes measurement at delivery points	Assumes similar actions in No-Action Alternative but applies to all water supplies

Table 2-1
Comparison of Contract Provisions Considered in Alternatives

Provision	No-Action Alternative Based on PEIS and Interim Contracts	Alternative 1 Based on April 2000 Proposal	Alternative 2 Based on November 1999 Proposal
Rates and method of payment for water	Assumes Tiered Pricing is total water quantity; assumes advanced payment for rates for two months	Assumes Tiered Pricing is total water quantity; assumes advanced payment for rates for one month	Assumes Tiered Pricing is total water quantity; assumes advanced payment for rates for six months
Non-interest-bearing operation and maintenance deficits	Assumes language from existing contracts	Same as No-Action Alternative	Same as No-Action Alternative
Sales, transfers, or exchanges of water	Assumes continuation of transfers with the rate for transferred water being the higher of the seller's or purchaser's CVP cost-of-service rate	Assumes continuation of transfers with the rate for transferred water being the purchaser's CVP cost-of-service rate	Same as No-Action Alternative
Application of payments and adjustments	Assumes payments will be applied as in existing contracts	Assumes minor changes associated with methods described for overpayment	Same as No-Action Alternative
Temporary reduction—return flows	Assumes that current operating policies strive to minimize impacts to CVP water users	Assumes minor changes associated with methods described for discontinuance or reduction of payment obligations	Same as No-Action Alternative
Constraints on availability of project water	Assumes that current operating policies strive to minimize impacts to CVP water users	Assumes Contractors do not consent to future Congressional enactments which may impact water supply reliability	Same as No-Action Alternative
Unavoidable groundwater percolation	Assumes that some of applied CVP water will percolate to groundwater	Same as No-Action Alternative	Same as No-Action Alternative
Rules and regulations	Assumes that CVP will operate in accordance with then-existing rules	Assumes minor changes with right to not concur with future enactments retained by Contractors	Same as No-Action Alternative
Water and air pollution control	Assumes that CVP will operate in accordance with then-existing rules	Same as No-Action Alternative	Same as No-Action Alternative

Table 2-1
Comparison of Contract Provisions Considered in Alternatives

Provision	No-Action Alternative Based on PEIS and Interim Contracts	Alternative 1 Based on April 2000 Proposal	Alternative 2 Based on November 1999 Proposal
Quality of water	Assumes that CVP will operate in accordance with existing rules without obligation to operate toward water quality goals	Same as No-Action Alternative	Same as No-Action Alternative
Water acquired by the contractor other than from the United States	Assumes that CVP will operate in accordance with existing rules	Assumes changes associated with payment following repayment of funds	Same as No-Action Alternative
Opinions and determinations	PEIS recognizes that CVP will operate in accordance with existing rules	Assumes minor changes with respect to references to the right to seek relief	Same as No-Action Alternative
Coordination and cooperation	Not included	Assumes that coordination and cooperation between CVP operations and users should be implemented and CVP users should participate in CVP operational decisions	Not included
Charges for delinquent payments	Assumes that CVP will operate in accordance with existing rules	Same as No-Action Alternative	Same as No-Action Alternative
Equal opportunity	Assumes that CVP will operate in accordance with existing rules	Same as No-Action Alternative	Same as No-Action Alternative
General obligation	Assumes that CVP will operate in accordance with existing rules	Similar to No-Action Alternative	Same as No-Action Alternative
Compliance with civil rights laws and regulations	Assumes that CVP will operate in accordance with existing rules	Same as No-Action Alternative	Same as No-Action Alternative
Privacy act compliance	Assumes that CVP will operate in accordance with existing rules	Same as No-Action Alternative	Same as No-Action Alternative
Contractor to pay certain miscellaneous costs	Assumes that CVP will operate in accordance with existing rules	Similar to No-Action Alternative	Same as No-Action Alternative

Table 2-1
Comparison of Contract Provisions Considered in Alternatives

Provision	No-Action Alternative Based on PEIS and Interim Contracts	Alternative 1 Based on April 2000 Proposal	Alternative 2 Based on November 1999 Proposal
Water conservation	Assumes compliance with conservation programs established by Reclamation and the State of California	Assumes conditions similar to No-Action Alternative with the ability to use State of California standards, which may or may not be identical to Reclamation's requirements	Same as No-Action Alternative
Existing or acquired water or water rights	Assumes that CVP will operate in accordance with existing rules	Same as No-Action Alternative	Same as No-Action Alternative
Operation and maintenance by non-federal entity	Assumes that CVP will operate in accordance with existing rules and no additional changes to operation responsibilities under this alternative	Assumes minor changes to language that would allow subsequent modification of operational responsibilities	Assumes minor changes to language that would allow subsequent modification of operational responsibilities
Contingent on appropriation or allotment of funds	Assumes that CVP will operate in accordance with existing rules	Assumes minor changes to language	Same as No-Action Alternative
Books, records, and reports	Assumes that CVP will operate in accordance with existing rules	Assumes changes for record keeping for both CVP operations and CVP users	Same as No-Action Alternative
Assignment limited	Assumes that CVP will operate in accordance with existing rules	Assumes changes to facilitate assignments	Same as No-Action Alternative
Severability	Assumes that CVP will operate in accordance with existing rules	Same as No-Action Alternative	Same as No-Action Alternative
Resolution of disputes	Not included	Assumes a Dispute Resolution Process	Not included
Officials not to benefit	Assumes that CVP will operate in accordance with existing rules	Same as No-Action Alternative	Same as No-Action Alternative
Changes in contractor's service area	Assumes no change in CVP water service areas absent Contracting Officer consent	Assumes changes to limit rationale used for non-consent and sets time limit for assumed consent.	Same as No-Action Alternative
Notices	Assumes that CVP will operate in accordance with existing rules	Same as No-Action Alternative	Same as No-Action Alternative

Table 2-1
Comparison of Contract Provisions Considered in Alternatives

Provision	No-Action Alternative Based on PEIS and Interim Contracts	Alternative 1 Based on April 2000 Proposal	Alternative 2 Based on November 1999 Proposal
Confirmation of contract	Assumes Court confirmation of contract	Not included; assumption is Court confirmation not required	Same as No-Action Alternative

Table 2-2
Environmental Consequences of Long-Term Contract Renewal Alternatives 1 and 2 as Compared to the No-Action Alternative

Affected Resource/Concern	Environmental Consequences of Alternative 1	Environmental Consequences of Alternative 2
Agriculture	Agricultural resource use assumed to be similar to the No-Action Alternative because the amount of water delivered, the timing of those deliveries, and the rates and methods of payment for deliveries do not substantially differ from the No-Action Alternative.	Impacts to Delta-Mendota Canal Unit total irrigated acreage range from 1,600 acres during a wet year to a 3,000-acre increase during a dry year. Impacts to Delta-Mendota Canal Unit value of production range from $1.0 million decrease during an average year following a dry, five-year period to a $1.2 million increase during a dry year. Impacts to Delta-Mendota Canal Unit net farm revenues range from $700,000 decrease during a wet year following a wet five-year period to a $2.2 million increase during a dry year following a dry five-year period.
Socioeconomics/ Power Resources	Socioeconomic and power resources impacts are expected to be similar to the No-Action Alternative because the amount of water delivered, the timing of those deliveries, and the rates and methods of payment for deliveries do not substantially differ from the No-Action Alternative.	No impacts to power resources because CVP hydroelectric facilities would continue to be operated as under No-Action Alternative conditions. San Joaquin River region total employment would decrease by 120 jobs and income from profits and wages would decrease by $4.2 million under the Average-Average hydrologic sequence. Region would lose an estimated 250 persons. San Joaquin River region total employment would decrease by 420 jobs and income from profits and wages would decrease by $12.4 million under the Dry-

Table 2-2
Environmental Consequences of Long-Term Contract Renewal Alternatives 1 and 2 as Compared to the No-Action Alternative

Affected Resource/Concern	Environmental Consequences of Alternative 1	Environmental Consequences of Alternative 2
		Average hydrologic sequence. Region would lose an estimated 873 persons.
Land Use	No direct adverse impacts to land use. Renewed contract water deliveries continue to accommodate a portion of planned growth and support agricultural land uses as under No-Action Alternative conditions.	No direct adverse impacts to land use. Renewed contract water deliveries would continue to accommodate a portion of planned growth and support agricultural land uses as under No-Action Alternative conditions.
Air Quality	Similar crops, cropping patterns, and total irrigated acreage would not result in substantial fallowed acreage capable of adverse fugitive dust or related air quality impacts when compared to the No-Action Alternative.	Similar crops, cropping patterns, and total irrigated acreage would not result in substantial fallowed acreage capable of adverse fugitive dust or related air quality impacts when compared to the No-Action Alternative.
Soils and Geology	Increased groundwater pumping could increase land subsidence. Increased soil salinity could result from reductions in surface water available for leaching salts through crop root zones or from poor quality groundwater pumped in response to reduced deliveries.	Increased groundwater pumping could increase land subsidence. Increased soil salinity could result from reductions in surface water available for leaching salts through crop root zones or from poor quality groundwater pumped in response to reduced deliveries.
Groundwater	Increased pumping in response to reduced surface water deliveries could reduce groundwater levels and salinity.	Increased pumping in response to reduced surface water deliveries could reduce groundwater levels and salinity.
Surface Water Resources	No impacts to surface water resources. Contract total, water to be made available, time for delivery, point of diversion, responsibility for water diversion, water measurement, and rates and methods of payment do not differ substantially from No-Action Alternative.	No impacts to surface water resources. Contract total, water to be made available, time for delivery, point of diversion, responsibility for water diversion, water measurement, and rates and methods of payment would not differ substantially from No-Action Alternative.
Surface Water Quality	No impacts to surface water quality. Continued operation of conveyance and distribution facilities would not degrade water quality when compared to the No-Action Alternative.	No impacts to surface water quality. Continued operation of conveyance and distribution facilities would not degrade water quality when compared to the No-Action Alternative.
Biological Resources	No adverse impacts to fish, vegetation and wildlife. Contract renewal would continue water deliveries accommodating land uses existing under the No-Action Alternative. No habitat supporting special-status species would be converted to agricultural, municipal, or	No adverse impacts to fish, vegetation, and wildlife. Contract renewal would continue water deliveries accommodating land uses existing under the No-Action Alternative. No habitat supporting special-status species would be converted to agricultural, municipal, or industrial use when compared to the No-Action

Table 2-2
Environmental Consequences of Long-Term Contract Renewal Alternatives 1 and 2 as Compared to the No-Action Alternative

Affected Resource/Concern	Environmental Consequences of Alternative 1	Environmental Consequences of Alternative 2
	industrial use when compared to the No-Action Alternative.	Alternative.
Cultural Resources	No impacts to cultural resources. Virtually all of the actions associated with long-term contract renewals are within the range of land uses expected under the No-Action Alternative. The area of use, types of use, range of river flows, and range of reservoir fluctuations fall within this range when compared to the No-Action Alternative. No changes in land use or additions to contractor service areas would affect cultural resources when compared to the No-Action Alternative.	No impacts to cultural resources. Virtually all of the actions associated with long-term contract renewals are within the range of land uses expected under the No-Action Alternative. The area of use, types of use, range of river flows, and range of reservoir fluctuations fall within this range when compared to the No-Action Alternative. No changes in land use or additions to contractor service areas would affect cultural resources when compared to the No-Action Alternative.
Recreational Resources	No adverse impacts to recreational resources. Facility operations, recreational opportunities, annual use levels, and reservoir water surface elevations would not differ substantially when compared to the No-Action Alternative.	No adverse impacts to recreational resources. Facility operations, recreational opportunities, annual use levels, and reservoir water surface elevations would not differ substantially when compared to the No-Action Alternative.
Visual Resources	No adverse impacts to visual resources. Patterns of cultivated and fallowed acreages would remain substantially the same as under No-Action Alternative conditions. Agricultural viewsheds, scenic views, and visibility would not be substantially affected when compared to the No-Action Alternative.	No adverse impacts to visual resources. Patterns of cultivated and fallowed acreages would remain substantially the same as under No-Action Alternative conditions. Agricultural viewsheds, scenic views, and visibility would not be substantially affected when compared to the No-Action Alternative.
Public Health/ Mosquitoes	No adverse impacts to public health or increases in mosquito breeding. No increase in flows or standing water would result when compared to the No-Action Alternative.	No adverse impacts to public health or increases in mosquito breeding. No increase in flows or standing water would result when compared to the No-Action Alternative.

DELTA-MENDOTA CANAL UNIT

ENVIRONMENTAL ASSESSMENT
LONG-TERM CONTRACT RENEWAL

Summary of PEIS

October 2000

Chapter 3
SUMMARY OF PEIS

INTRODUCTION

The purpose of this chapter is to summarize the results of the recently completed NEPA documents that address providing CVP water to the 20 contractors located within the Delta-Mendota Canal Unit. These documents include the PEIS for the CVPIA and the associated Biological Opinion. It should be recognized that under each of the descriptions presented in this chapter, references to "No-Action Alternative" and other alternatives are specific to the referenced documents, and not to the alternatives described in the remaining chapters of this EA.

PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

On October 30, 1992, the President signed into law the Reclamation Projects Authorization and Adjustment Act of 1992 (PL 102-575) that included Title XXXIV, the CVPIA. The CVPIA amended the previous authorizations of the CVP to give fish and wildlife protection, restoration, and mitigation equal priority with irrigation and domestic uses and to give fish and wildlife enhancement a project purpose equal to power generation. Through the CVPIA, Interior is developing policies and programs to improve environmental conditions that were affected by operations, management, and physical facilities of the CVP. The CVPIA also includes tools to facilitate larger efforts in California to improve environmental conditions in the Central Valley and the San Francisco Bay-Delta system. The PEIS addressed potential impacts and benefits implementing provisions of the CVPIA. The PEIS was prepared by Reclamation and the Service.

The analysis in the PEIS was intended to disclose the probable region-wide effects of implementing the CVPIA and provide a basis for making a decision among the alternatives. The PEIS was developed to allow subsequent environmental documents to incorporate the PEIS analysis by reference and limit the need to re-evaluate the region-wide and cumulative impacts of the CVPIA. In some cases, worst-case assumptions were used to maximize the utility of the analysis for tiering within the scope of the impacts analyzed in the PEIS.

As the project-specific actions are considered, the lead agencies must determine if the specific impacts were adequately analyzed in the PEIS. If the actions under consideration

had been previously evaluated and the impacts of such actions would not be greater than those analyzed in the PEIS or would not require additional mitigation measures, the actions could be considered part of the overall program approved in the PEIS Record of Decision. In such a case, an administrative decision could be made that no further environmental documentation could be necessary. If a tiered document is appropriate, the tiered document may be an EIS or an EA. The tiered documents can use the PEIS by reference to avoid duplication and focus more narrowly on the new alternatives or more detailed site-specific effects. Therefore, only changes from the alternatives considered in the PEIS would be addressed in detail in the tiered documents.

SUMMARY OF OVERALL ANALYSES OF PEIS ALTERNATIVES

The alternatives considered in the PEIS were analyzed to determine the potential for adverse and beneficial impacts associated with implementation of all actions as compared to continuation of the PEIS No-Action Alternative conditions. The most significant changes under the alternatives as compared to the PEIS No-Action Alternative were related to surface water and groundwater facilities operations and deliveries, power generation, fishery resources, agricultural land use and economics, and waterfowl habitat.

Due to the integrated nature of the PEIS alternatives, it is not possible to determine if the impacts and benefits would occur due to a specific CVPIA provision or goal. The impacts and benefits of a PEIS alternative are due to the overall implementation of CVPIA as compared to conditions without implementation of CVPIA in the No-Action Alternative.

LOCALIZED IMPACTS OF CVPIA IMPLEMENTATION ON WATER SERVICE CONTRACTORS

The primary impact to CVP water service contractors, as described in the PEIS, is not due to contract provisions, but rather to the implementation of the CVPIA. The reallocation of CVP water to fish and wildlife purposes under the CVPIA reduced average annual CVP water deliveries to water service contractors from 2,270,000 acre-feet per year under the PEIS No-Action Alternative to 1,933,000 acre-feet per year under all of the PEIS alternatives, including the Preferred Alternative. The reduction occurred differently for Delta-Mendota Canal Unit users, as summarized below.

- Average annual CVP water deliveries for agricultural water service contractors located in the Delta-Mendota Canal Unit decreased 18 percent from pre-CVPIA Affected Environment conditions.

- Average annual CVP water deliveries for municipal water service contractors located in the Delta-Mendota Canal Unit decreased 6 percent from pre-CVPIA Affected Environment conditions.

There was no change in deliveries to water rights holders, Sacramento River Settlement Contractors, or Delta-Mendota Exchange Contractors under CVPIA implementation.

IMPACTS AND BENEFITS TO LONG-TERM WATER SERVICE CONTRACT RENEWALS IN THE PEIS

The PEIS No-Action Alternative did assume renewal of existing contracts for total contract amounts, as previously described, for a 40-year period based upon contract provisions of 1994 interim contract renewal provisions. The PEIS alternatives assumed renewal of contracts for the same amounts as included in the PEIS No-Action Alternative; therefore, there would be no impacts or benefits under the PEIS alternatives for renewing CVP contracts at the same contract amounts. The PEIS alternatives assumed a 25-year contract period, which coincided with the PEIS study period; therefore, it was not possible to evaluate impacts associated with a change in contract periods.

IMPLEMENTATION OF LONG-TERM WATER SERVICE CONTRACT RENEWALS

The PEIS was intended to provide the basis for a decision on whether to implement most of the CVPIA provisions. However, the decision-maker may determine that additional analysis is needed to reach a decision on how to implement any of the provisions.

A Record of Decision based on the PEIS would include a decision to renew water service contracts in accordance with the requirements of the CVPIA. The Record of Decision based on the PEIS would likely not include a decision about how to implement tiered pricing. Rather, that decision may be deferred to this EA to allow further analysis of alternatives and incorporation of the evaluation into the contract negotiation process, if possible.

The PEIS assumed that subsequent NEPA documentation for long-term contract renewals would include a summary of a needs analysis and biological assessment at a contractor-specific level.

DELTA-MENDOTA CANAL UNIT

ENVIRONMENTAL ASSESSMENT
LONG-TERM CONTRACT RENEWAL

Affected Environment, Environmental Consequences, and Environmental Commitments

October 2000

Chapter 4
AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND ENVIRONMENTAL COMMITMENTS

INTRODUCTION

The Delta-Mendota Canal is part of the Delta Division of the CVP. The Delta Division provides for the transport of water through the central portion of the Central Valley and acts as a hub around which the CVP revolves. The Delta Division contains the facilities that transfer water from the Sacramento River to bolster irrigation supplies to lands formerly dependent on water from the San Joaquin River. The Delta Division facilities provide for the transport of water through both the Sacramento-San Joaquin River and the San Francisco Bay-Delta Estuary and for the delivery of water to CVP contractors in both the San Joaquin Valley and eastern Contra Costa County.

The subject of this EA is those water service contract deliveries to facilities (including the Delta-Mendota Canal) that transport water through the Sacramento-San Joaquin River to contractors in the San Joaquin Valley. The Contra Costa County facilities are included in a separate environmental review.

This chapter analyses impacts resulting from the implementation of Alternatives 1 and 2 when compared to the No-Action Alternative. The provisions of these alternatives are compared in Table 2-1 of this EA. Alternatives 1 and 2 are two "bookends" that represent a reasonable range of alternatives for long-term contract renewals. It is anticipated that the proposed action will represent a compromise with environmental consequences falling between the consequences of Alternatives 1 and 2, when compared to the No-Action Alternative. Mitigation is discussed only as appropriate, if impacts expected to result from the implementation of Alternative 1 or 2 could be avoided or reduced through such mitigation.

This chapter does not analyze impacts for which it would not be reasonable to assume that significant impacts could occur. Specifically, potential impacts to transportation, noise, hazards and hazardous materials, public services, utilities, and service systems are not analyzed, because it would not be reasonable to assume that the action of renewing long-term water service contracts could result in substantial impacts to these resources and services.

SECTION 4.1: CONTRACTOR SERVICE AREA DESCRIPTIONS

The project area for this EA is shown on Figure 4.1-1. Twenty contractors receive CVP water from the Delta-Mendota Canal and are included in this document. This area includes portions of Merced, Fresno, San Joaquin, and Stanislaus Counties. Specifically, the project area includes the service areas of the following irrigation districts, water districts, and other contractors:

- Banta-Carbona Irrigation District
- Broadview Water District
- Centinella Water District
- City of Tracy
- Coehlo Family Trust property
- Del Puerto Water District
- Eagle Field Water District
- Fresno Slough Water District
- James Irrigation District
- Laguna Water District
- Mardelia Hughes Property
- Mercy Springs Water District
- Oro Loma Water District
- Patterson Irrigation District
- Plain View Water District
- Reclamation District #1606
- The West Side Irrigation District
- Tranquillity Irrigation District
- West Stanislaus Water District
- Widren Water District

AFFECTED ENVIRONMENT

DESCRIPTION OF EXISTING DELTA-MENDOTA CANAL UNIT FACILITIES

Controlled releases of water from Shasta Reservoir are transported down the Sacramento River to the Sacramento-San Joaquin Delta. The Delta Cross Channel then transfers this CVP water to the Tracy Pumping Plant in the southern end of the Delta. The Tracy Pumping Plant lifts the water into the Delta-Mendota Canal, which delivers water to the CVP contractors. The CVP water also can be conveyed to the San Luis Reservoir for deliveries to CVP contractors that divert from the San Luis Canal. This latter use is described in detail in the Draft EIS for the San Luis Unit that is under development and will be available under separate cover. The following discussion describes the primary facilities of the Delta-Mendota Canal Unit of the Delta Division.

Page holder for Figure 4.1-1

Delta Cross Channel

The Delta Cross Channel is a 1.2-mile-long, controlled diversion channel between the Sacramento River and Mokelumne River. At the north end of the Sacramento-San Joaquin Delta, the Delta Cross Channel combines with several natural channels that carry the water approximately 50 miles to the Tracy Pumping Plant. Reclamation believes that the Delta Cross Channel and the training works in the San Joaquin River were necessary to prevent lesser quality water in the San Joaquin River from getting into the Tracy Pumping Plant.

To combat saltwater intrusion in the Delta and to dilute local pollution, the Delta Cross Channel draws fresh water from the Sacramento River to the Mokelumne River. The diversion also provides an adequate supply of water to the Delta-Mendota Canal and improves irrigation supplies in the Sacramento-San Joaquin Delta. During high water, Reclamation closes the control gates of the channel to prevent flood stages in the San Joaquin section of the Delta. Gates are reopened after flood danger passes to allow Sacramento River water through to the Tracy Pumping Plant. The Cross Channel is also operated to improve conditions for outmigrating chinook salmon and steelhead trout.

Tracy Pumping Plant

Construction of the Tracy Pumping Plant, which consists of an inlet channel, pumping plant and discharge pipes, was completed in 1951. Water received from the Sacramento-San Joaquin Delta is lifted 197 feet, pumped through discharge pipes, and carried approximately one mile up an inclined grade to the Delta-Mendota Canal. The power to run the pumps is supplied by CVP powerplants. The Delta-Mendota Intake Channel, an earth-lined section approximately 2.5 miles long, also includes a fish screen that was built to intercept downstream migrant fish so that they may be returned to the main channel to resume their journey to the ocean.

Delta-Mendota Canal

The Delta-Mendota Canal, the second largest of the CVP waterways, was completed in 1951. It includes a combination of both concrete-lined and earth-lined sections and is about 117 miles in length. It carries water southeasterly from the Tracy Pumping Plant along the west side of the San Joaquin Valley for irrigation supply, for use in the Delta-Mendota Canal Unit, and to replace San Joaquin River water stored by Friant Dam and used in the Friant-Kern and Madera Canals. The canal transports water from the Tracy Pumping Plant to the Mendota Pool, which is controlled by a concrete storage dam that was constructed in 1919. The Mendota Pool is located at the confluence of the San Joaquin River and the north fork of the Kings River, approximately 30 miles west of the city of Fresno.

DELTA-MENDOTA CANAL UNIT CONTRACTORS' FACILITIES AND WATER USE

Twenty contractors receive an allocation of CVP water from the Delta-Mendota Canal. A general description of each of these contractors and a discussion of both the CVP and other available water supplies to the contractor are provided below.

Banta-Carbona Irrigation District's Facilities and Water Use

Because low rainfall conditions have created potential dry-farming crop failures, farmers and landowners wanting to remain in business banded together and organized the Banta-Carbona Irrigation District, which was officially formed on March 14, 1921. The district was originally about 15,500 acres in size with no irrigated acres and is currently about 17,920 acres in size with 16,500 irrigated acres. The district is located in San Joaquin County just south of the city of Tracy and is adjacent to the Del Puerto Water District to the southwest and the West Stanislaus Water District to the southeast. Figures 4.1-2 and 4.1-3 show the current land uses and habitat types for the Banta-Carbona Irrigation District service area.

The distribution system in Banta-Carbona Irrigation District consists of 4 miles of unlined canal, 33.2 miles of concrete-lined canal, 46 miles of underground pipeline, and 4 miles of other unlined conveyance. CVP water is lifted from the Delta-Mendota Canal through two turnouts and is then distributed through a pipeline connected to the Banta-Carbona Main Lift Canal. All of the district's facilities are either pump or gravity delivery canals. Currently, all gates within the district are manually operated and all the turnouts are measured on a daily basis.

Use of CVP Water. On February 14, 1969, Banta-Carbona Irrigation District entered into a long-term contract (Contract 14-06-200-4305A) with Reclamation for 25,000 acre-feet of CVP supply. The contract expired on February 28, 1995. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 14-06-200-4305A-IR3) was executed on February 29, 2000.

Use of Other Available Water Supplies. The district also receives water supply from the Sacramento-San Joaquin Delta. This supply was originally a very dependable, high quality water source that has gradually degraded as more permits for water rights were granted and the water supply ran short to meet the new diversion quantities. The quality and reliability of Delta water has continued to worsen. Water from the Sacramento-San Joaquin Delta and CVP water are the only water supplies available to the district.

Operating Rules and Regulations. District policy requires all landowners to have either tailwater pumpback systems to recycle their tailwater or ponds to settle silt before the

water is drained back into a district lateral for reuse. As a result, the Banta-Carbona Irrigation District's system is closed and no water escapes the district.

Banta-Carbona Irrigation District is also active in water transfers and has transferred water to The West Side Irrigation District, West Stanislaus Irrigation District, Panoche Water District, Broadview Water District, and Westlands Water District. Banta-Carbona Irrigation District has also informed Reclamation that it intends to transfer a portion of its CVP supply to the City of Tracy by 2025.

Broadview Water District's Facilities and Water Use

Originally a part of Westlands Water District, a group of landowners and farmers pulled out and formed Broadview Water District on August 16, 1955. Broadview Water District is located on the west side of the San Joaquin Valley and approximately five miles west of Firebaugh, in Fresno County. The district is approximately 9,515 acres in size with 9,300 irrigated acres. All of the land in the district is high quality production land. There is no marginal agricultural land in the district. Figures 4.1-4 and 4.1-5 show the current land uses and habitat types for the Broadview Water District service area.

Originally, the distribution system in Broadview Water District consisted of a single pipeline that connected to the Delta-Mendota Canal and ran two miles to the district boundaries. A series of six lift pumps and six booster pumps were later constructed to lift and distribute the water within the district service area. Later, in the 1960s, the distribution system was reconstructed to increase the capacity. Currently, the Broadview Water District's distribution system consists of 30 miles of open unlined canals and laterals, two miles of pipeline, and six pumping stations with a total of 36 pumps. All the water is lifted from the Delta-Mendota Canal into the district's main canal delivery system. The only storage facility in the Broadview Water District is the main canal, which consists of six pumping stations and five ponds. All the laterals from the main canal are gravity-fed. The main canal is automated and all of the laterals have manual gates. All turnouts on the system are metered.

Use of CVP Water. On November 27, 1959, Broadview Water District entered into a long-term contract (Contract 14-006-200-8092) with Reclamation for 16,000 acre-feet of CVP water. In May 1964, after the capacity of the district's distribution system was increased, the 1959 contract was amended. Under the new contract (Contract 14-06-200-8092 Amendatory), Reclamation would provide 27,000 acre-feet of CVP water to the district. The amended contract expired on February 28, 1995. Since then, a series of interim contracts have been executed.

A small portion of the CVP water is used for M&I use to provide drinking water in the district. This water is delivered through the San Luis Canal through the Westlands Water

District distribution system. Broadview Water District then receives the water through a turnout from the Westlands system.

Use of Other Available Water Supplies. CVP water is the only water supply source for the district. There is one groundwater well located in the district, but it is inoperable.

Operating Rules and Regulations. The district has drainage problems caused by impervious clay layers that restrict the downward movement of shallow groundwater containing salts and boron. As a result, a subsurface drainage system has been installed. The drainage system has 18 miles of open drain channels, 2.1 miles of pipeline, and three lift stations with nine pumps. There are also 25 tile drain systems that are owned by landowners. Water users recycle their drainage water with surface irrigation water and reapply it to their fields. Also, the district has historically drained discharge water through the Grassland Water District and into the San Joaquin River. Currently, as part of the Grasslands Bypass Project, Broadview Water District is required to remove its drainage water from the Grasslands Channels and convey the water through the existing San Luis Drain and into the San Joaquin River at the same point.[1]

As part of a land management program to reduce drain water and improve wildlife habitat, Broadview Water District is evaluating alternative crop rotation options for reducing volumes of drainage water. As part of the study, drains will be monitored and cropping patterns and irrigation management changes imposed based on the results. The program has been implemented through the use of a Reclamation grant.

Broadview Water District is active transferring water to other districts. Because many water users farm in both Broadview Water District and another districts, it is the district's policy to allow water users to transfer any portion of their allocation to their water accounts in other districts, provided the transfer does not significantly impact Broadview Water District operations.

Centinella Water District's Facilities and Water Use

Formed in 1964, Centinella Water District is located on the northern end of the San Luis Reservoir in Merced County and is adjacent to Del Puerto Water District to the north and east. The district is approximately 850 acres in size with 840 irrigated acres. Because of its small size, the district is exempt from Section 3405(e) of the CVPIA, which requires the preparation of a water conservation plan. Figures 4.1-6 and 4.1-7 show the current land uses and habitat types for the Centinella Water District service area.

[1] The primary goals of the Grasslands Bypass Project are to remove the unusable agricultural drainage water from water delivery channels and ditches in the Grassland Water District and to provide an opportunity to collect the drainage water from a large agricultural area and place it in a single conveyance facility for transport to the San Joaquin River.

The district receives its CVP supply directly through a turnout on the Delta-Mendota Canal. This district does not have any distribution facilities and does not own any pumps, pipelines, or canals to transport the CVP supply. All turnouts, pumps, pipelines, and canals in the district are privately owned, maintained, and operated. All drainage systems are also privately developed, operated and maintained by individual landowners.

Use of CVP Water. The district operated under a temporary contract with Reclamation until a permanent cost-of-service type contract was executed. On July 8, 1977, Centinella Water District signed a long-term contract (Contract 7-07-20-W0055) with Reclamation to supply 2,500 acre-feet of CVP water. The contract expired on February 28, 1995. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 7-07-20-W0055-IR3) was executed on February 29, 2000.

Use of Other Available Water Supplies. CVP water is the only water supply source for the district.

Operating Rules and Regulations. Because all the distribution and drainage systems are owned, operated, and maintained by individual water users, the district has not instituted a drainage policy. The district, however, maintains a cooperative stance with downslope districts regarding problems arising from tailwater leaving district boundaries and will take necessary actions to remedy such problems.

The district's policy on water transfers is to allow transfers of allocated water supply between parcels of land, either within the district or between districts, when the supply is associated with lands owned by the same landowner. Therefore, the only water transfers outside the district are transfers from a landowner to itself.

City of Tracy's Facilities and Water Use

The city of Tracy is located in the central San Joaquin Valley, strategically placed at the juncture of Interstate 5 and Interstate 580, providing fast and easy access to both the San Francisco Bay Area and up and down the Central Valley. Tracy is a rapidly changing community with a population of nearly 48,000. One of seven cities in San Joaquin County, Tracy is also one of the fastest growing cities in the county. Its population is expected to grow to approximately 85,000 by the year 2010. Figures 4.1-8 and 4.1-9 show the current land uses and habitat types for the City of Tracy service area.

The City of Tracy receives its CVP supply from a turnout on the Delta-Mendota Canal. In 1999, about 56 percent of Tracy's water supply was provided by its CVP supply. Because the CVP water is used for M&I purposes, it must be treated before delivery. The treatment process for the CVP supply consists of chemical oxidation, coagulation, flocculation, filtration, and chlorination. In addition, chloramines (the combination of chlorine and a

small amount of ammonia) are used as the residual disinfectant in the water distribution system. The CVP water is transferred by pipeline to the water treatment plant and, after treatment, transferred by pipeline to M&I users.

Use of CVP Water. On July 22, 1974, the City of Tracy signed a long-term contract (Contract 14-06-200-7858A) with Reclamation for 10,000 acre-feet of CVP water. This contract will expire in 2004.

Use of Other Available Water Supplies. The City of Tracy's water system includes CVP water from the Delta-Mendota Canal and groundwater pumped from nine groundwater wells located throughout the city. There are no other water supply sources serving the city; however, the City of Tracy is negotiating with The West Side Irrigation District for a permanent transfer of an additional CVP supply to help meet Tracy's growing demand. The South County Surface Water Project is also expected to supply 10,000 acre-feet of treated surface water from the Stanislaus River beginning as soon as 2004. Banta-Carbona Irrigation District and Plain View Water District have also informed Reclamation of their intent to transfer a portion of their CVP supplies to the City of Tracy by 2025.

Coehlo Family Trust's Facilities and Water Use

About 1,120 acres of the Coehlo Family Trust property are currently under contract with Reclamation to receive CVP water. Because of its small size, the trust is exempt from Section 3405(e) of the CVPIA, which requires the preparation of a water conservation plan. The property receives its CVP allocation directly from the Mendota Pool and conveys the water through its own distribution system to the property. Figures 4.1-10 and 4.1-11 show the current land uses and habitat types for the Coehlo Family Trust property.

The Coehlo Family signed a long-term contract (Contract 14-06-200-7589A) with Reclamation to supply 3,525 acre-feet of CVP water until December 23, 2003. A binding agreement for early renewal of CVP water was signed on September 30, 1997 (Contract 14-06-200-7859A-BA).[2]

In addition to its CVP supply, the Coehlo Family Trust property has groundwater wells that provide a supplemental supply in dry years. The Coehlo Family Trust also had 5,200 acre-feet of supplemental water and 2,653 acre-feet of Schedule 2 water for water

[2] An additional mitigation and restoration payment of 150 percent of the annual payment calculated under the CVPIA is required for long-term contractors whose contracts were in existence on October 30, 1992, but had not been renewed between January 1, 1988, and October 29, 1992. However, since the PEIS was not completed by October 1, 1997, the additional mitigation and restoration payment does not apply to long-term contractors with a contract in existence on the date of CVPIA enactment (October 30, 1992) who enter into a binding agreement with the Secretary prior to October 1, 1997, to renew their contracts immediately upon completion of the PEIS, if such contract has not expired prior to completion of the PEIS.

rights.[3] It subsequently assigned 3,120 acre-feet of the supplemental water and 1,321 acre-feet of Schedule 2 water to the California Department of Fish and Game.

Del Puerto Water District Facilities and Water Use

The Del Puerto Water District was originally organized on March 24, 1947, and included approximately 3,875 acres. The district was reorganized on March 1, 1995, through a formal consolidation with ten other districts.[4] The reorganized Del Puerto Water District is located on both sides of the Delta-Mendota Canal and consists of a narrow strip of land averaging less than two miles in width and stretching 50 miles in length. Del Puerto Water District includes approximately 47,400 acres located along the west side of Stanislaus, San Joaquin and Merced Counties. Stanislaus County serves as the principal county for the district. Figures 4.1-12 and 4.1-13 show the current land uses and habitat types for the Del Puerto Water District service area.

The district receives its CVP supply directly through turnouts on the Delta-Mendota Canal. This district does not have any distribution facilities and does not own any pumps, pipelines, or canals to transport the CVP supply. All turnouts, pumps, pipelines, and canals in the district are privately owned, maintained, and operated. The district owns and maintains only the water meters.

Use of CVP Water. On June 10, 1953, Del Puerto Water District signed a long-term contract (Contract 14-06-200-922) with Reclamation for 10,000 acre-feet of CVP water. After the 1995 consolidation, the water service contracts of the other ten districts were assigned to Del Puerto Water District and were subsequently renegotiated as a single contract. Under the single contract, Del Puerto received 140,210 acre-feet of CVP water. Since the expiration of those individual contracts, a series of interim contracts have been executed. The most recent (Contract 14-06-200-922-IR5) was executed on February 29, 2000.

Use of Other Available Water Supplies. Del Puerto Water District has no groundwater wells and does not receive water supplies from any source other than the CVP.

Operating Rules and Regulations. All of the distribution and drainage systems in the Del Puerto Water District are owned, operated, and maintained by individual water users; therefore, the district has not instituted a drainage policy. The district, however, maintains

[3] Schedule 2 water is all water delivered without charge under the authority of Section 14 of the Reclamation Project Act o f 1939, as a permanent adjustment and settlement of a district's asserted claims to water in the Fresno Slough tributary to the San Joaquin River in fulfillment of such rights pursuant to Contract No. I7r-1145, "Contract for Purchaser of Mller & Lux Water rights," dated July 27, 1939.

[4] Districts consolidated to form Del Puerto Water District are Hospital, Kern Canon, Salado, Sunflower, Orestimba, Foothill, Davis, Mustang, Quinto, and Romero.

a cooperative stance with downslope districts regarding problems arising from tailwater leaving district boundaries and will take necessary actions to remedy such problems.

The district's policy on water transfers is to allow transfers of allocated water supply between parcels of land, either within the district or between districts, when the supply is associated with lands owned by the same landowner. Therefore, the only water transfers outside the district are transfers from a landowner to itself.

Eagle Field Water District's Facilities and Water Use

Eagle Field Water District is approximately 1,372 acres in size and is located in both Merced and Fresno Counties. Because of its small size, the district is exempt from Section 3405(e) of the CVPIA, which requires the preparation of a water conservation plan. The district is located between the Outside Canal and the Delta-Mendota Canal. Figures 4.1-14 and 4.1-15 show the current land uses and habitat types for the Eagle Field Water District service area.

Eagle Field Water District receives its CVP water supply directly from two turnouts on the Delta-Mendota Canal. The district has no additional conveyance facilities. All administrative functions for the Eagle Field Water District are being provided by the Panoche Water District.

Use of CVP Water. On April 10, 1858, the district signed a long-term contract (Contract 14-06-200-7754) with Reclamation for 4,550 acre-feet of CVP water. The contract expired on February 25, 1995. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 14-06-200-7754-IR3) was executed on February 29, 2000.

Use of Other Available Water Supplies. In addition to CVP supply, Eagle Field Water District has groundwater wells that provide a supplemental supply in dry years.

Operating Rules and Regulations. Eagle Field Water District is part of the Panoche Drainage District. The drainage district, which is comprised of Panoche, Eagle Field, Oro Loma, and Mercy Springs Water Districts, was formed in the late 1950s to transport subsurface drainage water and tailwater from district lands. Historically, the Panoche Drainage District has been able to drain its discharge water through the Grassland Water District and into the San Joaquin River. Currently, as part of the Grasslands Bypass Project, the drainage district is required to remove its drainage water from the Grasslands Channels and convey the water through the existing San Luis Drain and into the San Joaquin River at the same point.

Eagle Field Water District is active in water transfers and in the past year has transferred water to other districts including Panoche Water District.

Fresno Slough Water District's Facilities and Water Use

Formed in 1956, the Fresno Slough Water District is about 1,200 acres in size. Because of its small size, the district is exempt from Section 3405(e) of the CVPIA, which requires the preparation of a water conservation plan. The district is located in western portion of Fresno County and is adjacent to Tranquillity Irrigation District to the east. Figures 4.1-16 and 4.1-17 show the current land uses and habitat types for the Fresno Slough Water District service area.

After the Delta-Mendota Canal releases water into the Mendota Pool, some of the supply then flows from the pool into the Fresno Slough (or Kings River Bypass). The Fresno Slough Water District lifts its allocation of CVP water from the Fresno Slough into its own distribution system, which consists of approximately seven miles of unlined canals and two lift pump locations with two pumps at each lift. Fresno Slough Water District distributes the water to a number of unmetered turnouts.

Use of CVP Water. On July 30, 1998, the Fresno Slough Water District signed a long-term contract (Contract 14-06-200-4019A) with Reclamation for 3,500 acre-feet of water from the Delta-Mendota Canal. The contract will expire in 2003.

Use of Other Available Water Supplies. In addition to CVP supplies, the district receives a 866 acre-feet of Schedule 2 water for water rights and has an additional contract with Reclamation for 4,000 acre-feet of CVP water. The district also owns two deep groundwater wells, which are used for backup supplies during periods of high demand. No groundwater recharge program is currently in place and the quality of the groundwater is poor with high salinity.

Operating Rules and Regulations. The district is active in transfers of water both in and out of the district. Typically, any transfers out of the district would first be offered to neighboring Tranquillity Irrigation District. Because of the crop types grown in the district and the weather, this year Fresno Slough Water District anticipates transferring a portion of its CVP contract water to the Westlands Water District.

James Irrigation District's Facilities and Water Use

Formed in February 1920, James Irrigation District is about 41.2 square miles in size. The district is located within the central portion of the San Joaquin Valley, about 30 miles southwest of Fresno in Fresno County. Most of the land in the district was part of a land grant received by pioneer Jefferson G. James in 1858. Land in the district is relatively flat and soils range from coarse sands to heavy clays. Soils in the middle and western portions

of the district generally have a higher clay content. Figures 4.1-18 and 4.1-19 show the current land uses and habitat types for the James Irrigation District service area.

James Irrigation District's distribution system consists of 91.5 miles of unlined canal, 14.3 miles of lined canal, and 6 miles of pipeline. The main canal operates as a lift canal for surface water that is pumped from the Mendota Pool into the Fresno Slough (or Kings River Bypass). A series of booster stations are then located along the distribution system to feed the various laterals and sublaterals. The entire length of the main canal is unlined. All but three of the 356 turnouts in the district are measured and read daily.

The district also has a regulation reservoir with a capacity of about 100 acre-feet and a storage reservoir with a capacity of about 900 acre-feet. James Irrigation District hopes to use these facilities to increase the amount of Kings River flood release water that is used for groundwater recharge to offset overdraft conditions rather than being lost to downstream users or the San Francisco Bay-Delta Estuary. However, since the facilities have been in place, no water has been available for groundwater recharge.

Use of CVP Water. James Irrigation District is one of the last contractors to obtain CVP water that has flowed from the Mendota Pool into Fresno Slough (or Kings River Bypass). On December 23, 1963, James Irrigation District entered into a long-term contract (Contract 14-06-200-700-A) with Reclamation for 35,300 acre-feet of CVP water. The contract will expire in 2003.

Use of Other Available Water Supplies. Historically, James Irrigation District received its water supply from the Kings River through a series of canals built in the late 1800s. However, the Kings River water supply was not reliable, and as one of the last districts along the river, it was also one of the last to receive water. In dry years, little or no water was available. The district also built a canal from the San Joaquin River. San Joaquin River water was also not very reliable and the supply was available only when flows exceeded the needs of other users. After Friant Dam was completed in 1944, the district began pumping San Joaquin River water directly from the Mendota Pool on an annual basis until August 1 of each year, with no limit on quantity. After the Delta-Mendota Canal was completed in 1951, CVP supply replaced the district's water supply.

The district has been a member of the Kings River Water Association since 1921. In 1963, James Irrigation District entered into agreements with Reclamation and the Kings River Water Association to establish entitlements to surface water from the San Joaquin and Kings Rivers. As a result, the district received an allocation of riparian water from the San Joaquin River that is delivered without charge as a settlement of the district's water rights claims in Fresno Slough. The amount of water delivered varies depending on whether the year is normal, wet or dry. The district also traded all of its allocation of scheduled Kings

River water to the Lower Kings River Water Association in exchange for agreed-upon payments to the district. Since these agreements, the district receives Kings River water only when flood releases are made. In the next few years, the district plans to purchase portable lift pumps to deliver Kings River flood releases (when available) to farms east of the district for in-lieu groundwater recharge and to use the regulation and storage reservoirs.

In addition to these surface water sources, groundwater is used as a supplemental supply. All but two wells are district-owned. The district generally uses any and all surface supplies available and then pumps groundwater to make up for any shortfall. Groundwater is pumped mostly along the eastern boundary of the district, as groundwater in other areas is of poorer quality with high salinity and contamination plumes.

James Irrigation District also receives operational spill water from the Fresno Irrigation District, which is used for agricultural use. Also, in past years, Reclamation has made surplus water available to the district. This water is either imported from the Sacramento-San Joaquin Delta through the Delta-Mendota Canal or is a San Joaquin River Flood Release (called "Section 215" water by Reclamation). James Irrigation District also receives 9,700 acre-feet of Schedule 2 water for water rights.

Operating Rules and Regulations. Growers in James Irrigation District are permitted to pump tailwater back into district canals, allowing the tailwater to be recycled and reused in the district's system. This activity must be coordinated with the district's responsible ditchtender.

James Irrigation District is also active in water transfers to and from other CVP contractors and other members of the Kings River Water Association. The district, however, has not allowed individual growers to transfer their CVP allocation from land farmed within the district to land owned by the same individual but farmed outside of the district. The district would generally not approve water transfers that result in an overall loss of water that could have been used within the district.

Laguna Water District's Facilities and Water Use

Laguna Water District is approximately 417 acres in size and is located in Fresno County. Because of its small size, the district is exempt from Section 3405(e) of the CVPIA, which requires the preparation of a water conservation plan. Figures 4.1-20 and 4.1-21 show the current land uses and habitat types for the Laguna Water District service area.

Laguna Water District has no distribution facilities of its own. Instead, the district has a contract with the Central California Irrigation District for transportation of its CVP water. The Delta-Mendota Canal releases water into the Mendota Pool and then water is

transported from the pool to the Laguna Water District through distribution facilities of the Central California Irrigation District.

Use of CVP Water. On May 26, 1982, the district signed a long-term contract (Contract 2-07-20-W0266) with Reclamation for 800 acre-feet of CVP water. This contract expired on December 31, 1995. Since then, a series of interim contracts have been executed.

Use of Other Available Water Supplies. The district has no water supplies other than the CVP allocation.

Mardelia Hughes' Facilities and Water Use

About 10.99 acres of the Mardelia Hughes property is currently under contract with Reclamation to receive CVP water. Because of its small size, the property is exempt from Section 3405(e) of the CVPIA, which requires the preparation of a water conservation plan. The property receives its CVP allocation directly from the Mendota Pool and transfers the water through its own distribution system to the property. Figures 4.1-22 and 4.1-23 show the current land uses and habitat types for the Mardelia Hughes property.

On October 11, 1967, a long-term contract (Contract 14-06-200-3537A) was signed between Reclamation and the Hughes property for 70 acre-feet of CVP water until December 23, 2003. A binding agreement for early renewal of CVP water was signed on September 30, 1997 (Contract 14-06-100-3537A-BA). The Mardelia Hughes property also receives 93 acre-feet of Schedule 2 water for water rights. The Mardelia Hughes property has no other water supply sources.

Mercy Springs Water District's Facilities and Water Use

Mercy Springs Water District is approximately 3,390 acres in size and is located in Fresno County. The district spans the Main Canal, Outside Canal, and the Delta-Mendota Canal. Figures 4.1-24 and 4.1-25 show the current land uses and habitat types for the Mercy Springs Water District service area.

Mercy Springs Water District receives its CVP water directly from a turnout on the Delta-Mendota Canal and has no additional conveyance facilities.

Use of CVP Water. On June 21, 1967, the district signed a long-term contract (Contract 14-06-20-3365A) with Reclamation for 13,300 acre-feet of CVP water. This contract expired on February 28, 1995. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 14-06-200-3365A-IR3A) was executed on February 29, 2000.

A portion of Mercy Springs CVP allocation, representing 6,260 acre-feet, was assigned to Pajaro Valley Water Management Agency, Westlands Water District, and Santa Clara Valley Water District. This partial assignment, entered into through an agreement dated May 14, 1999, subsequently reduced the Mercy Springs CVP allocation to 7,040 acre-feet.

Use of Other Available Water Supplies. In addition to CVP supply, Mercy Springs Water District has groundwater wells that provide a supplemental supply in dry years.

Operating Rules and Regulations. Mercy Springs Water District is part of the Panoche Drainage District. The drainage district, which is comprised of Panoche, Eagle Field, Oro Loma, and Mercy Springs Water Districts, was formed in the late 1950s to transport subsurface drainage water and tailwater from district lands. Historically, the drainage district had been able to drain its discharge water through the Grassland Water District and into the San Joaquin River. Currently, the Panoche Drainage District is required to remove its drainage water from the Grasslands Channels and convey the water through the existing San Luis Drain and into the San Joaquin River at the same point (known as the Grasslands Bypass Project).

Mercy Springs Water District decided not to participate in the Grasslands Bypass Project; therefore, the district, which is drained by deep drainage ditches, currently lacks a drainage outlet. As part of a land management program to reduce drain water and improve wildlife habitat that was implemented with a Reclamation grant, Panoche Water District will now develop a portion of Mercy Springs into alternative land management by changing historical cropping rotations. Portions of the district will be planted to alfalfa, Bermuda grass, and other salt-tolerant grasses that will be irrigated with CVP water, well water, and subsurface drainage water from Panoche Water District. The area will be used to establish the sustainability and feasibility of salt-tolerant grass for the continuous use of blended subsurface drainage water.

Mercy Springs Water District is active in water transfers and in past years has transferred water out to other districts, including Westlands Water District.

Oro Loma Water District's Facilities and Water Use

Oro Loma Water District is located in Fresno County. Because of its small size, the district is exempt from Section 3405(e) of the CVPIA, which requires the preparation of a water conservation plan. The district is located between the Outside Canal and the Delta-Mendota Canal. Figures 4.1-26 and 4.1-27 show the current land uses and habitat types for the Oro Loma Water District service area.

Oro Loma Water District receives its CVP water directly from two turnouts on the Delta-Mendota Canal and has no additional conveyance or distribution facilities.

Use of CVP Water. On April 7, 1959, the district signed a long-term contract (Contract 14-06-200-7823) with Reclamation for 4,600 acre-feet of CVP water. This contract expired on February 28, 1995. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 14-06-200-7823-IR3) was executed on February 29, 2000.

Use of Other Available Water Supplies. In addition to CVP supply, Oro Loma Water District has groundwater wells that provide a supplemental supply in dry years.

Operating Rules and Regulations. Oro Loma Water District is part of the Panoche Drainage District. The drainage district, which is comprised of Panoche, Eagle Field, Oro Loma, and Mercy Springs Water Districts, was formed in the late 1950s to transport subsurface drainage water and tailwater from district lands. Historically, the Panoche Drainage District had been able to drain its discharge water through the Grassland Water District and into the San Joaquin River. Currently, the Panoche Drainage District is required to remove its drainage water from the Grasslands Channels and convey the water through the existing San Luis Drain and into the San Joaquin River at the same point (known as the Grasslands Bypass Project).

Oro Loma Water District is active in water transfers and in past years has transferred water out to other districts, including Panoche Water District.

Patterson Irrigation District's Facilities and Water Use

The Patterson Water District was formed in November 1955 at an original size of approximately 15,000 acres. After a series of exclusions, the size of the district in 1996 was 13,225 acres. All of these acres are irrigated. After being formed, Patterson Water District later changed to Patterson Irrigation District. The primary differences between irrigation and water districts are the range of purposes underlying their formation, eligible lands, and voting systems.

Patterson Irrigation District is located in Stanislaus County and is adjacent to West Stanislaus Irrigation District to the northwest and Del Puerto Water District to the southwest. The district includes 425 landowners and over 600 water users. Figures 4.1-28 and 4.1-29 show the current land uses and habitat types for the Patterson Irrigation District service area.

The Patterson Irrigation District distribution system consists of 3.8 miles of unlined canal, 51.8 miles of concrete-lined canal, and 84 miles of pipeline. The main canal flows from east to west and the main laterals that come off the main canal and flow to the north and south. The district also has a series of lift pump stations, four reservoirs that are located off the main canal, and two smaller reservoirs located off the main laterals. Originally

designed as settling basins to settle out silt from San Joaquin River source water, the reservoirs have negligible storage capacity.

Use of CVP Water. On December 18, 1967, Patterson Irrigation District entered into a long-term contract (Contract 14-06-200-3598A) with Reclamation for 16,500 acre-feet of CVP water. This contract expired on February 28, 1995. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 14-06-200-3598A-IR3) was executed on February 29, 2000.

Use of Other Available Water Supplies. In addition to the CVP supply, Patterson Irrigation District receives local surface water from the San Joaquin River and also pumps groundwater. The district's San Joaquin River and groundwater supply sources have high concentrations of salt that limit cropping patterns and affect water quality conditions and crop yields. Salinity conditions in the river are well documented by the Regional Water Quality Control Board. The district also receives an additional 6,000 acre-feet of replacement water from Reclamation because CVP water allocations have reduced San Joaquin River flows.

Operating Rules and Regulations. Patterson Irrigation District has aggressively pursued an automation and modernization plan since 1997 and this is expected to continue in the future. Modernization efforts include replacing less efficient pumps and motors and constructing Replogle flumes for accurate flow measurement and long-crested weirs for water level control. As they are implemented, these efforts will continue to increase the efficiency of the district's system.

Through a funding program provided by Reclamation, Patterson Irrigation District is actively working with the Irrigation Training and Research Center at California Polytechnic State University on developing a canal automation system that would include flowmeters and volumetric options for measuring flow rate.

Any tailwater or drainage water return flows in the district either percolate into the groundwater aquifer or end up in the San Joaquin River via direct drain facilities. A small quantity also enters Del Puerto Creek. Most of the tailwater that ends up in the San Joaquin River is reused. Approximately one-half of the return flows enter the San Joaquin River upstream of the district's diversion and, therefore, are available for reuse by the district. The other one-half enters the San Joaquin River downstream of the district's diversion and is available to other downstream users. The reuse of return flows either within the district or by other users promotes good water management by conserving water.

Patterson Irrigation District is active in water transfers both into and out of the district. In recent years, water has been transferred to West Stanislaus Irrigation District and Westlands Water District.

Plain View Water District's Facilities and Water Use

Plain View Water District was formed on January 15, 1951. The district is located in San Joaquin County primarily along the eastern side of Interstate 5 near the city of Tracy. The district was originally 6,000 acres in size with 5,316 irrigated acres and is currently 6,422 acres in size with 5,987 irrigated acres. Figures 4.1-30 and 4.1-31 show the current land uses and habitat types for the Plain View Water District service area.

Plain View Water District receives its CVP water directly from the Delta-Mendota Canal through 28 turnouts. The district's distribution system consists of 9.2 miles of pipeline. The system is an entirely enclosed pipeline system constructed of reinforced concrete pipe and polyvinylchloride pipe that was installed to replace the original Techite pipe. There are no open ditches or canals in the system. Propeller meters measure the flow volume to each point of delivery.

Use of CVP Water. On May 22, 1953, Plain View Water District entered into a long-term contract (Contract 14-06-200-785) with Reclamation for 17,250 acre-feet of CVP water. In 1974, the district annexed additional land and the contract was amended on July 25, 1975. Under the amendment, Reclamation provided 20,600 acre-feet of CVP water to the district. The long-term contract expired on February 28, 1994. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 14-06-200-785-IR5) was executed on February 29, 2000.

Use of Other Available Water Supplies. Plain View Water District currently has no water supply source other than the CVP supply.

Operating Rules and Regulations. There is no subsurface drainage in Plain View Water District. The drainage is either recirculated on-farm or discharged to either the Delta-Mendota Canal or The West Side Irrigation District for reuse.

Plain View Water District is active in transferring water both to and from other contractors. To date, however, the district has not allowed individual transfers. Plain View Water District has also informed Reclamation that it intends to transfer a portion of its CVP supply to the City of Tracy by 2025.

Reclamation District #1606's Facilities and Water Use

Reclamation District #1606 is approximately 170 acres in size. Because of its small size, the district is exempt from Section 3405(e) of the CVPIA, which requires the preparation

of a water conservation plan. The district is located in Fresno County and is adjacent to James Irrigation District. It was originally formed for flood protection along the Kings River. In 1914, Reclamation District #1606 constructed two channels along its neighboring district, James Irrigation District. These channels were constructed to make a continuous connection from the Kings River to the San Joaquin River, to pass floodwater through the area, and to prevent flooding of the two districts. Figures 4.1-32 and 4.1-33 show the current land uses and habitat types for the Reclamation District #1606 service area.

The Delta-Mendota Canal releases water into the Mendota Pool, and some of this supply then flows into the Fresno Slough (or Kings River Bypass). Reclamation District #1606 pulls its CVP supply from the Fresno Slough using two lift pumps.

Use of CVP Water. On April 12, 1968, Reclamation District #1606 signed a long-term contract (Contract 14-06-200-3802A) with Reclamation for 228 acre-feet of CVP water until December 23, 2003. A binding agreement for an early renewal contract was executed with Reclamation (Contract 14-06-200-3802A-BA) on September 30, 1997.

Use of Other Available Water Supplies. Reclamation District #1606 also receives 342 acre-feet of Schedule 2 water for water rights. The district has no other water supply sources.

The West Side Irrigation District's Facilities and Water Use

The West Side Irrigation District was organized on October 12, 1915, and made its first water deliveries in 1919. The district is located in San Joaquin County and is divided in half by the city of Tracy. The district was originally about 12,160 acres in size with 10,800 irrigated acres and is currently 9,436 acres in size with 8,500 irrigated acres. Figures 4.1-34 and 4.1-35 show the current land uses and habitat types for The West Side Irrigation District service area.

CVP water is diverted from the Delta-Mendota Canal through two turnouts. One turnout ties into the district's upper main canal through a 1.8-mile-long concrete pipe and the second turnout ties into the district's upper main canal through a 1.4-mile-long concrete pipe. Both are gravity flow systems. The upper main canal is nine miles in length (including 1 mile of concrete-lined canal, 3.5 miles of pipeline and 4.5 miles of unlined canal) and includes 11 miles of concrete piped laterals. The lower main canal is also nine miles in length (including 1.5 miles of concrete-lined canal, 3 miles of pipeline, and 5.5 miles of unlined canal) and includes 13 miles of concrete piped laterals. All of the gates in the system are manual and all flows in the district's distribution system are measured regularly.

Use of CVP Water. In June 1977, The West Side Irrigation District entered into a long-term contract (Contract 7-07-20-W-0045) with Reclamation for 7,500 acre-feet of CVP supply. This new contract expired on February 28, 1995. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 7-07-20-W0045-IR3) was executed on February 29, 2000.

Use of Other Available Water Supplies. The district has received water from the San Joaquin River from water rights dating back to 1916. San Joaquin River water is diverted through a dredged unlined intake canal and flowed by gravity into the district's pumping facilities. The water is then lifted through two pipelines; one terminates at the beginning of the Lower Main Canal and the other discharges into the Upper Main Canal and mixes with CVP water. The water then flows by gravity, similar to the CVP supply, and is delivered to users. Because of its degraded quality and reliability, San Joaquin River water is only used as a supplement when CVP water supplies are insufficient to meet demand.

There are no groundwater or private irrigation wells within the district. The district has no water supplies other than CVP and San Joaquin River water.

Operating Rules and Regulations. The West Side Irrigation District has a tailwater return flow collection (surface drainage) system to provide drainage to all the lands within the district. No drainage (or tailwater) leaves The West Side Irrigation District boundaries. The district has constructed facilities to collect drainage water and return it to the district's intake canals where it is combined with San Joaquin River water and pumped back into the conveyance facilities for reuse. Tailwater is also received from Plain View Water District and recirculated into the district's system.

The West Side Irrigation District is active in water transfers. Transferred water has been received water from other districts, including the Banta-Carbona Irrigation District, and has been transferred to other districts, including Plain View Water District. The West Side Irrigation District has also informed Reclamation of its intent to transfer a portion of its CVP water supply to the City of Tracy by 2025.

Tranquillity Irrigation District's Facilities and Water Use

Formed in 1918, Tranquillity Irrigation District is approximately 10,750 acres in size. The district is located in the west central portion of Fresno County; its principal community is the unincorporated town of Tranquillity. The district does not currently have a water conservation plan as required by Section 3405(e) of the CVPIA. While it is anticipated that the district will prepare a water conservation plan, the schedule for the availability of such a document is not known.

The Delta-Mendota Canal releases water into the Mendota Pool, and some of this supply then flows into the Fresno Slough (or Kings River Bypass). The district then lifts its allocation of CVP water from the Fresno Slough into its own distribution system, which consists of 42 miles of unlined canal, 10 miles of pipelines, two major lift pump stations, and a series of lifts. The entire system is both metered and automated including automated gates at the turnouts. The district is constantly seeking ways to upgrade and improve its distribution system, including low interest loans and bond money, including water conservation bond money to convert open canals in the district to pipelines. Figures 4.1-36 and 4.1-37 show the current land uses and habitat types for the Tranquillity Irrigation District service area.

Use of CVP Water. On December 23, 1963, Tranquillity Irrigation District signed a long-term contract (Contract 14-06-200-701A) with Reclamation for 13,800 acre-feet of water until December 23, 2003. A binding agreement for an early renewal of CVP water was signed on September 30, 1997 (Contract 14-06-200-701-A-BA).

Use of Other Available Water Supplies. Tranquillity Irrigation District has six groundwater wells, which are used as a backup supply during periods of high demand. The district also maintains two deep groundwater wells for the domestic water system for the community. No individual landowners own or operate any deep groundwater wells. Because a portion of the district's CVP supply is transferred to the Kings River in accordance with a previous agreement, the district purchases supplemental water from Reclamation to make up for the loss of this water. Tranquillity Irrigation District also receives 20,200 acre-feet of Schedule 2 water for water rights.

Operating Rules and Regulations. District policy allows transfers both into and out of the district. The district has historically been active in transfers and has transferred water both to other CVP contractors (including Westlands Water District, San Luis Water District, and Panoche Water District) and to other entities including the State Drought Bank.

West Stanislaus Water District's Facilities and Water Use

West Stanislaus Irrigation District was formed on May 20, 1920 and has been in continuous operation since. Located in portions of both Stanislaus and San Joaquin Counties, the district overlies a portion of the San Joaquin Valley groundwater basin, in the northern portion of the Delta-Mendota Basin, and the southern portion of the Tracy Basin, which is drained by the San Joaquin River. The first water deliveries were made in 1929. The current size of the district is 24,800 acres, of which 21,500 acres are irrigated. The district is adjacent to Banta-Carbona Irrigation District to the north, Patterson Irrigation District to the south, and Del Puerto Water District to the west. Figures 4.1-38

and 4.1-39 show the current land uses and habitat types for West Stanislaus Water District service area.

West Stanislaus Irrigation District current distribution system consists of a three-mile-long, concrete-lined main canal and 84 miles of laterals and sublaterals that are either canals or pipelines. Sixty-eight of these 84 miles are either concrete-lined canals or concrete pipe. The main canal carries water supplied by six pumping plants. The district receives water from the Delta-Mendota Canal through two diversion points.

The district has a continuous monitoring system of accurate measurement for water diverted into the laterals. The water measurements are taken three times daily at the water user's turnouts, and control structures in the laterals control the level of water and regulate the flow.

CVP Water Supply. On July 14, 1953, West Stanislaus Irrigation District signed a long-term contract (Contract 14-06-200-1072) with Reclamation for 20,000 acre-feet of CVP water. The contract amount was increased to 50,000 acre-feet in 1976. The contract expired on February 28, 1994. Since then, a series of interim contracts have been executed. The most recent interim contract (Contract 14-06-200-1072-IR5) was executed on February 29, 2000.

Use of Other Available Water Supplies. Since 1929, West Stanislaus Irrigation District has had the right to divert water from the San Joaquin River. However, after construction of Friant Dam and the diversion of river water to the southern part of the valley, the quantity available to the district became inadequate and the quality has continued to degrade and become more saline. The district also uses four groundwater wells, drilled in 1977, as a supplemental water source during peak demands. However, use of these wells is limited because of high pumping costs and water quality concerns. Some landowners within West Stanislaus Irrigation District own private groundwater wells to service their property.

Operating Rules and Regulations. West Stanislaus Irrigation District has a surface drainage system to collect tailwater. All of the surface drainage eventually finds its way to the San Joaquin River. The water that flows in the natural channels goes directly to the river and the other facilities discharge onto riparian land adjacent to the river, which enhances the riparian habitat.

West Stanislaus Irrigation District allows water transfers into and out of the district.

Widren Water District's Facilities and Water Use

Widren Water District is approximately 800 acres in size and is located in Fresno County on the Delta-Mendota Canal. Because of its small size, the district is exempt from Section 3405(e) of the CVPIA, which requires the preparation of a water conservation plan. Figures 4.1-40 and 4.1-41 show the current land uses and habitat types for the Widren Water District service area.

The district has one turnout on the Delta-Mendota Canal and no other improvements.

Use of CVP Water. On September 25, 1959, the district signed a long-term contract (Contract 14-06-200-8018) with Reclamation for 2,990 acre-feet of CVP water. Since the contract expired on February 28, 1995, Widren Water District has been receiving CVP water under an interim renewal contract with Reclamation.

Use of Other Available Water Supplies. The district has no water supplies other than the CVP allocation.

Operating Rules and Regulations. Along with other Grassland basin drainers, including Broadview Water District, Widren Water District has been draining discharge water (or tailwater) through the Grassland Water District and into the San Joaquin River. Currently, as part of the Grasslands Bypass Project, the Widren Water District is required to remove its drainage water from the Grasslands Channels and convey the water through the existing San Luis Drain and into the San Joaquin River at the same point. The district is an active participant in water transfers and has transferred water to Westlands Water District in past years.

Interpretation of Figures 4.1-2 Through 4.1-41

Some discrepancies may appear to exist between land use and habitat typing of some contractor areas. This is a result of different dates and resolutions of the source data. For instance, land use data from the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) shows more urban area than the comparative habitat information from the California Department of Fish and Game's Geographic Assistance to Planning (GAP) data. Although both data sets have the same 1998 publication date, the FMMP data originates from U.S. Department of Agriculture/ Natural Resources Conservation Service soil surveys combined with current, county-level land use reporting (minimum mapping unit of 10 acres), while the GAP data relies on remotely-sensed satellite data from 1990 (minimum mapping unit of approximately 250 acres). In all cases, the most current data from reliable agencies have been used.